DOCUMENT RESUME

ED 377 226 TM 022 401

AUTHOR	Darling-Hammond, Linda, Comp.; And Others
TITLE	Authentic Assessment in Practice: A Collection of Portfolios, Performance Tasks, Exhibitions, and Documentation.
INSTITUTION	Columbia Univ., New York, NY. Teachers Coll. National Center for Restructuring Education, Schools and Teaching.
SPONS AGENCY	Aaron Diamond Foundation, Inc., New York. NY.; DeWitt Wallace / Reader's Digest Fund, Pleasantville, N.Y.; Leon Lowenstein Foundation, New York, NY.
PUB DATE	Oct 93
NOTE	308p.
AVAILABLE FROM	National Center for Restructuring Education, Schools, and Teaching. Box 110, Teachers College, Columbia University, New York, NY 10027 ($15).
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC13 Plus Postage.
DESCRIPTORS	*Documentation; *Educational Assessment; Educational Practices; Elementary Secondary Education; Evaluation Methods; *Exhibits; Learning; *Portfolio Assessment; Student Evaluation; Test Construction; Testing; *Test Use
IDENTIFIERS	*Authentic Assessment; *Performance Based Evaluation

ABSTRACT

This collection of examples of authentic assessments has been compiled to provide a sampling of the many new strategies for evaluating student work and learning that are being developed and used in schools around the country. These strategies are called "authentic" because they require that students demonstrate what they can do as workers would in real, out-of-school, settings. Sometimes these assessments are embedded so firmly in the curriculum that they are nearly indistinguishable from instruction. Examples and approaches in this collection fall into categories, often overlapping, of: (1) performance-based tasks and exhibitions; (2) portfolios; and (3) documentation of learning over time. In all, 33 examples are presented. (Contains 141 references.) (SLD)

AUTHENTIC ASSESSMENT IN PRACTICE:

A Collection of Portfolios, Performance Tasks, Exhibitions, and Documentation

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NCREST
National Center for Restructuring Education, Schools, and Teaching
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Columbia University

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NCREST is supported by a major grant from the DeWitt Wallace-Reader's Digest Fund. NCREST's work in New York City, through its Center for School Reform, is supported by the Leon Lowenstein Foundation and the Aaron Diamond Foundation. Other funders have included the Center for Collaborative Education, the Danforth Foundation, the Geraldine R. Dodge Foundation, the Ford Foundation, the Fund for New York City Public Education, Impact II, the Lily Endowment, Inc., the Andrew Mellon Foundation, the Metropolitan Life Foundation, the National Center for Research on Vocational Education, the New York Community Trust, the New York State Department of Education, and the Regional Laboratory for Educational Improvement of the Northeast and Islands.

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October 1993

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Acknowledgements

The job of compiling this compendium was a collaborative process and took the time and effort of many people. We would like to thank all of the contributors for allowing us to reprint their work. We are grateful to NCREST associate director for research Beverly Falk for her invaluable guidance and support in producing this compendium. We also wish to thank NCREST communications director Diane Harrington, editor Elizabeth Lesnick, and administrative assistant Karen Hales Parkinson, whose assistance greatly smoothed the production of this volume.

Linda Darling-Hammond

Contents

Introduction

This collection of authentic assessment examples has been compiled to provide a sampling of the many new strategies for evaluating student work and learning that are being developed and used in schools around the country. These strategies are called "authentic" because they require that students demonstrate what they can do in ways that workers would in out-of-school settings: by performing tasks that are complex and require production of real solutions or products. Rather than taking multiple-choice tests in which they react to ideas or identify facts, students engage in science experiments, conduct social science research, write essays and papers, read and interpret literature, and solve mathematical problems in real-world contexts.

In some cases, these assessment examples are so firmly embedded in the curriculum that they are practically indistinguishable from instruction. This is one salient characteristic of an "authentic assessment": It is designed to provide the student with a genuine rather than a contrived learning experience that provides both the teacher and student with opportunities to learn what the student can do. The demonstration of learning occurs in a situation that requires the application and production of knowledge rather than the mere recognition or reproduction of correct answers. Authentic assessments are also contextualized: Rather than assembling disconnected pieces of information, the tasks are set in a meaningful context that provides connections among ideas. They are connected to students' life and learning experiences and are representative of the kinds of real-world challenges encountered in the field of study being explored.

In addition, the term assessment denotes a broader approach to evaluation than traditional testing offers. It is a process that uses many sources of evidence and different kinds of indicators for gathering information to meet a variety of evaluation needs. Information about student accomplishments is organized and documented in ways that support reliable evaluations of what they understand and can do. More importantly, assessment can inform teaching and learning -- illuminating how students think as well as what they know. These assessments can show what pathways students take to learning as well as what they can do in different contexts using various modes of performance.

Many of the examples included in this volume are works in progress and, like good teaching practice, they are the product of ongoing reflection and adaptation. Our purpose in presenting them in this way is not to suggest that any of these are models or technologies to be adopted "off-the-shelf." Instead, we hope they will stimulate thinking, suggest new strategies and possibilities, and provide focal points for local deliberation and invention. In order for authentic assessment to be truly "authentic" as well as educative in the context of any particular school, it must grow out of the values and implicit standards of that school community -- made explicit and shaped into meaningful opportunities for learning as well as for assessment. Almost invariably, when a school community develops new approaches to defining valued learning and assessing students' progress, changes are required in how that school organizes itself for teaching and learning and for what goes on in classrooms. For this reason, we stress that each of these examples itself exists in a context that makes the assessment strategy both meaningful and possible. That learning context is what makes the assessment work as a promoter of learning and a stimulus for school development.

The authentic assessment examples and approaches in this collection fall into three categories that often overlap: 1) performance-based tasks and exhibitions; 2) portfolios; and 3) documentation of learning over time. Some examples do not fit neatly into any one category but bridge several: Portfolios, for example, often include performance tasks and documentations of student learning; some documentation strategies make use of portfolios of student work; exhibitions frequently rely on several kinds of connected products. This combination of approaches within any one assessment design exemplifies how sources of evidence are integrated to create richer evaluations. The examples come from a variety of sources including state departments of education, school districts, individual teachers, and schools. They cover a range of academic disciplines and skills, as well as assessment approaches that look at the "whole child" and at cross-disciplinary applications of knowledge and abilities.

Performance-Based Assessments

Performance-based assessments typically consist of tasks designed to have students actively solve problems and apply knowledge. One purpose is to observe the strategies that students use to solve problems rather than merely seeing the right answer asked for on a test. A good performance task allows for the examination of challenging content as well as the use of particular skills and an assessment of overall performance. These tasks can include science experiments, oral presentations, essays, video documentations of performances, and so on. The essence of a performance task is that the skills and knowledge being assessed are contextualized, and the performance requires the student's active, rather than reactive, participation.

Exhibitions might be considered extended performance tasks in that they require students to actively synthesize and apply course content in an original expression of individual achievement. Public discourse about the student's work is an important component of an exhibition. Often an exhibition requires students to take their work through several stages, i.e., conceptualization, research, application, and presentation. Students may be required to document their process of inquiry, which is then assessed together with the final product.

Portfolios

Portfolios may include performance tasks and a variety of other student work samples, along with observations and evaluations of student learning from the student and peers as well as the teacher. They provide multiple sources of information about a student's development over time. One important feature of most portfolios is that the student plays a major role in developing and selecting work to include in the portfolio, particularly where the portfolio includes a student's self-selected "best work" along with versions of a piece of work over time. The active participation of the student in his/her own self-assessment process, with the teacher's (and sometimes peers') facilitation, brings a metacognitive element to this approach, helping students learn to evaluate how and what they are learning and to develop their own internal standards. Like an artist's portfolio, a portfolio for assessment purposes is a collection of a student's work that demonstrates his/her achievements, growth, and efforts in many areas or media. It provides documentation of the student's work that displays command of skills and content as well as insight into the learning process over time. As contrasted with the snapshot view of a student provided by a test, portfolios offer opportunities for longitudinal assessment. This supports a developmental view of learning and a keener understanding of each student's own path toward competence.

Both portfolios and performance-based assessments are consistent with contemporary developmental and constructivist learning theories. These assessments ask learners to actively synthesize knowledge and apply it in open-ended ways. Skills, knowledge, and reasoning are integrated rather than fragmented when a student is asked to construct his/her own performance or portfolio. The boundaries between assessment, the curriculum, and learning become more permeable while the process of learning becomes more coherent.

Documentation of Learning Over Time

Documentary assessment approaches include methods of recording the developmental process of the learning of individual children. The examples show several ways of organizing the data a teacher collects about a child's learning process and specific achievements, along with how the data can be used to inform curriculum and instruction. These approaches offer a developmental and longitudinal perspective on learning that is intended to inform teaching as well as enhance teachers' ability to describe student learning to parents and others.

* * *

Together, these kinds of strategies provide concrete evidence of what students understand and are able to do in complex performance situations, rather than the decontextualized proxies that provide little help to teachers or students in learning how to develop and improve their performances. As teachers work with strategies like these, they deepen the discourse about and possibilities for teaching and learning. We hope that this volume enriches those conversations and further supports the development of practice.

Performance Tasks and Exhibitions

Performance Tasks and Exhibitions

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Overview

Performances and Exhibitions: The Demonstration of Mastery

Cushman, K. (1990). "Performances and Exhibitions: The Demonstration of Mastery." *Horace* 6(3). Providence, RI: The Coalition of Essential Schools.

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Volume 6, Number 3 The Coalition of Essential Schools March 1990

HORACE

Performances and Exhibitions: The Demonstration of Mastery

A true test asks students to show what they know and can do, not to spout unrelated facts they have memorized the night before. Once we start measuring performance this way, change is swift to follow—in what we teach, in how we teach, and in our assumptions about why kids are in school at all.

WHAT DO WE WANT HIGH school students to learn? The most revealing answer can be had by looking at what we expect from them when their time is up. What students know and what they can do, after a course is completed or a high school career ended, is in many ways a reflection of what their schools have expected them to master.

For many, this means proving themselves through a series of mechanized hoops—machine-scanned textbook tests, achievement and competency tests. But for students in an increasing number of schools, the question of mastery is becoming at once more messy and more authentic. What can you *really* do? teachers uncomfortable with what conventional tests show are beginning to ask. What do you understand about how to get answers to hard questions? And in realistic contexts before mixed audiences of peers, teachers, and the community, students in many schools are showing us the answers, in the exhibitions that expose the very heart of what the Coalition of Essential Schools is trying to do.

"In its original form, the exhibition is the public expression by a student of real command over what she's learned," says CES Chairman Theodore Sizer. "It began in the eighteenth century, as the exit demonstration in New England academies and in colleges like Harvard. The student was expected to perform, recite, dispute, and answer challenges in public session." If such a performance is well designed, Sizer points out, it elicits proof both of the student's understanding and of some imaginative capability—it serves at once as evaluative agent and expressive tool. "We expect people to show us and explain to us how they *use* content—it's more than mere memory," Sizer says. "It's the first real step towards coming up with some ideas of their own."

The concept of performance-based evaluation is nothing new, notes Grant Wiggins, who has been a consultant to CES on assessment issues, we see it every time someone presents a business proposal, performs in a recital, plays a ball game. But the exhibition is at least as much a teaching tool as an assessment method, Sizer points out, as much inspiration as measurement. "Giving kids a really good target is the best way to teach them," he says. "And if the goal is cast in an interesting way, you greatly increase the chances of their achieving it. When you can see the obvious exhilaration of the final act—as, for example, in really using a foreign language well—it's perceived quite differently from the usual test, which is secret and comes at you in a way you never see in other areas, with time constraints and machine grading."

Figure 1. Qualities of "Authentic Performances"

Structure and Logistics

- Are more appropriately public; involve an audience or panel.
- Do not rely on unrealistic and arbitrary time constraints.
- Offer known, not secret, questions or tasks.
- Are more like portfolios or a season of games, not one-shot.
- Require some collaboration with others.
- Recur—and are worth practicing for and retaking.
- Make assessment and feedback to students so central that school schedules, structures, and policies are modified to support them.

Intellectual Design Features

- Are "essential"—not needlessly intrusive, arbitrary, or designed to "shake out" a grade.
- Are "enabling"—constructed to point the student towards more sophisticated use of the skills or knowledge.
- Are contextualized, complex intellectual challenges, not "atomized" tasks corresponding to isolated "outcomes."
- Involve the student's own research or use of knowledge, for which "content" is a means.
- Assess student habits and repertoires, not mere recall or plug-in skills.
- Are representative challenges—designed to emphasize depth more than breadth.
- Are engaging and educational.
- Involve somewhat ambiguous tasks or problems.

Grading and Scoring Standards

- Involve criteria that assess essentials, not easily counted but relatively unimportant errors.
- Are graded not on a curve but in reference to performance standards (criterion-referenced, not norm-referenced).
- Involve demystified criteria of success that appear to *students* as inherent in successful activity.
- Make self-assessment a part of the assessment.
- Use a multifaceted scoring system instead of one aggregate grade.
- Exhibit harmony with shared schoolwide aims—a standard.

Fairness and Equity

- Ferret out and identify (perhaps hidden) strengths.
- Strike a constantly examined balance between honoring achievement and native skill or fortunate prior training.
- Minimize needless, unfair, and demoralizing comparisons.
- Allow appropriate room for student learning styles, aptitudes, and interests.
- Are attempted by all students, with the test "scaffolded up," not "dumbed down," as necessary.
- Reverse typical test-design procedures. A model task is first specified; then, a fair and reliable plan for scoring is devised.

These are provided by Grant Wiggins, former director of research at CES; he gives credit to Ted Sizer, Art Powell, Fred Newmann, and Doug Archbald and to the work of Peter Elbow and Robert Glaser for some of these criteria.

If it were not for a bureaucracy of schooling deeply invested in easily generated outcomes, common sense might dictate the steps in which teachers assess students. *Of course* we want students who are curious, who know how to approach new problems, who use reading and writing across the disciplines as a natural part of that process, who are thoughtful, able, and active citizens. And to get them we would merely make those goals known from the start, test for them regularly, and correct a student's course when necessary.

What complicates matters is an approach to testing that originated in an era when it still seemed possible, and necessary, to impart to young scholars a set body of information. In addition, educational theorists believed that the way to learn things was to break them down into their smaller components. Testing reflected those assumptions: it was discipline-specific, content-driven, easily shaped into multiple-choice instruments of assessment. Even reading and writing were taught and assessed this way, broken down into discrete components that could be tested and taught separately. In the effort to achieve consistency and a uniform standard, "subjectivity" became a bad word; and in the push for scientifically accurate assessment no one acknowledged that even the choice and wording of items on standardized tests reflected biases as real as those of any classroom teacher.

In our information-loaded age, that system has lost whatever intellectual credit it may once have had. We can't know all "the facts" anyway; and even if it were possible, theorists now think students learn best when facts are sought in their context, not in arbitrary sequences. Instead, Essential schools aim for teaching students how to find out and critically evaluate the facts they need in a particular situation—the thoughtful habits of mind that are sometimes called the "higher

Most standardized tests, critics say, lack the subtlety and sophistication needed to test critical thinking skills.

literacies." Most standardized tests, critics say, lack the subtlety and sophistication needed to test such critical thinking skills.

But the old system of testing still has bureaucratic usefulness, and so students still hear its message clearly: they are in school to be sorted, ranked, selected. For better students, this can rob their studies of excitement or intellectual purpose. For the less advantaged, though, it implies a guaranteed level of failure—because norm-referenced standardized tests distribute students along a bell-shaped curve which can be predicted in advance. Such methods have changed testing, many argue, from a teaching and learning tool to the point where it serves only a social and political purpose.

HORACE

HORACE is published five times yearly at Brown University by the Coalition of Essential Schools, Box 1938, Brown University, Providence, RI 02912. Subscription is free. Publication of HORACE is supported by a grant from the Rockefeller Brothers Fund.

Editor: Kathleen Cushman
Managing Editor: Susan Fisher

To change that pattern, the Coalition of Essential Schools asserts, we must change the very *reason* students go to school. This must begin, Sizer says, with a new expectation: that all students can use their minds well. New incentives are next: real mastery of things they want to do well. Finally, schools must provide new proving grounds where they can show off that mastery in positive, public, and personal ways. This last is known, in Essential schools, as the *exhibition*; both in theory and in practice, it is the cornerstone of what an Essential school is all about.

What Deserves a Diploma?

In an ideal Essential school, Ted Sizer believes, all decisions about a school's curriculum should flow from the devising of a culminating exhibition at graduation. Do we want graduates to be able to synthesize information from a variety of disciplines in a well-reasoned argument? Then design courses that give them regular practice in cross-disciplinary inquiry, and require a final project that shows they can do it. Do we want them to answer and ask questions on their feet, to work productively in groups? Then course work must consciously train them in these skills. Do we want them to judge the reasonableness of an answer, whether in mathematics or ethics, and to evaluate the quality of evidence? Then in every class give priority to such habits of mind over traditional coverage of content. Do we want active citizens who know their rights and ways to affect their own government? Then require courses that directly engage them in such matters.

Clearly, the structural choices that follow such an evaluation of a school's ends can be uncomfortably radical. They will affect every teacher and every student, at every level from the daily lesson plan to the final graduation hurdles. It is easy to see why so few in the Coalition have put the "exit exhibition" first in their efforts to revise and restructure their schools. If one starts by defining graduation requirements in terms of demonstrations of mastery, it's difficult to proceed in cautious little steps.

Instead, most Essential schools have held off on developing a culminating performance before graduation. They prefer to develop, within individual or team-taught courses, a new style of assessing student progress that relies more on demonstration of thoughtful habits of mind and less on memorization of facts. These course-level exhibitions are referred to within the Coalition as "performances," to distinguish them from the graduation exhibition.

Just what do these performances look like? How are they graded, and what allowance is made for different levels of student ability? Without standard measures, how can a teacher reliably tell if the basic competencies are being mastered? Doesn't it cost a lot to do things this way, in teacher time and training, in administering and scoring? Don't we need to teach students to take the standardized tests that the real world judges them by? I asked these questions of Essential school theorists and teachers who have been trying performance-based assessment in their classrooms.

What Performances Look Like

At the classroom level, a performance is often as simple as a final essay that requires skills in inquiry and synthesis to answer what the Coalition calls "essential questions." [See HORACE, Volume 5, No. 5.] Or it might display student mastery in the form of a project, perhaps undertaken by a group. In some classes students prepare portfolios of their best work to submit for evaluation; in others, they present their work orally and answer questions on it before the class. Whatever its form, the performance must engage the student in real intellectual work, not just memorization or recall. The "content" students master in the process is the means to an end, not the end itself.

Because Essential school teachers use such skills as part of their everyday commitment to "active learning," it can be hard to tell where performances start and regular classwork leaves off. And indeed, everyone agrees that performances do serve as a teaching tool as much as an assessment tool. But if we are to consider performances as an alternative to conventional testing, it is most useful to look at their evaluative purpose.

For example, at Springdale High School in Arkansas, humanities teacher Melinda Nickle and the other members of her teaching team devised a final exam that could be used for classes in inquiry and expression, literature and fine arts, social studies, and science. (See Figure 2.) Students are asked to link research materials across the disciplines in a thematic essay; later they participate in group evaluations of each others' papers. The format is aimed at many essential skills at once: an interdisciplinary approach, "student-as-worker," the development of critical thinking, and so on. It took a lot of time, Nickle says: at least two teachers had to evaluate each paper and then compare scores before a grade was put on them. But "all our students remarked on how much they learned from the performance," she says. "They spent hours working on it at a time of year when most students had already shut down due to the approaching vacation."

At the classroom level, an exhibition can be a final essay, a project, a portfolio, or an oral presentation.

Figure 2. A Final Performance Across the Disciplines

Discuss behavior patterns as reflected in the insect world, in animals, in human beings, and in literature. Be sure to include references to your course work over the term in Inquiry and Expression, Literature and the Arts, Social Studies, and Science. This may include *Macbeth*, the drug prevention and communication workshop, Stephen Crane's poetry, "A Modest Proposal" and other essays you have studied, Mark Twain's fiction, and behaviors you have observed in our School-within-a-School. You may also add references to what you have read about in the news recently.

Procedure. *Day one of the exam:* You will be given four periods in which to brainstorm, make an outline, write a rough draft, and write a final copy in standard composition form. You will be graded not only on how well you assimilate the material but also how well you reflect the "student as worker" metaphor and how responsibly you act during the testing period.

Day two of the exam: You will assemble in villages of three, evaluate anonymous papers according to a set of criteria, and come to a consensus about a grade. Each paper will be evaluated by at least two groups and two instructors. Again, a part of your overall semester grade will have to do with how responsibly you act and how well you demonstrate the "student as worker" metaphor.

Thanks to Melinda Nickle at Springdale High School, Springdale, Arkansas

At Adelphi Academy in Brooklyn, New York, science teacher Chet Pielock and humanities teacher Loretta Brady ask students to form teams to investigate Latin America's problems of poverty and illiteracy, overcrowding, earthquakes, and political instability. (See Figure 3.) To answer some questions in the performance students must exhibit detailed geographic knowledge; to answer others, they must relate them to society and history. Interesting issues can arise from such work: How are "natural resources" regarded by different cultures? What happens when different cultures conflict over the value of a natural resource? How do natural resources function in human struggles for power?

The best performances and exhibitions are not merely projects aimed at motivating students; they evoke fundamental questions within a discipline. For a final exam in both history and English, for example, one teaching team has students support or refute the statement, "What matters in history is not societies or events, but individuals." (See Figure 4.) Because it asks the essential question "What causes history?", such an inquiry can reflect not only how we see the past but how we think about the present and future. Next students are asked to evaluate their own essay along specific criteria, and then to relate an "English" essay on subjectivity in research writing to it as well—revealing the interdisciplinary connections between literature and history.

How to Grade a Performance

One of the reasons conventional tests hold such sway in schools, of course, is that they are easy to grade. Are teachers' evaluations of exhibitions and performances as objective and reliable as the multiple-choice and fill-in-the-blanks tests they replace?

"We can't evade these very technical questions of reliability and validity," Grant Wiggins said

Figure 3. A Final Performance Across the Disciplines

So you want to understand Latin America's problems: poverty and illiteracy, overcrowding, earthquakes, and political instability (that's right, war). Can Latin America overcome these problems? Is the United States helping Latin America all it can? What is behind these problems? One key topic we need to understand is the land itself. We will become three teams of experts exploring three key fields:

1. **What forces have shaped the land?**
2. **What are the resources of the land?**
3. **Why do people live where they do on the land?**

Each group has special requirements they need to fulfill, but in general, these are the expectations we have for you while you work and for the day of the final exhibition of your work:

"A" grade:
Everyone on team understands all the material well.
The team teaches the rest of the class effectively.
All diagrams and maps are effective and attractive.
Group uses class time effectively. All are involved.
Group asks good questions of each other on team.
Group asks good questions of other exhibiting groups.
"B" grade:
All of the above are fulfilled almost thoroughly.
"C" grade:
One of the above is not fulfilled.
Either one or two people in the group are lost; or
diagrams/maps are incomplete, messy, inaccurate;
or group does not stay on task in class.
"D" grade:
You don't know what you are doing.
You have omitted a required map or diagram.
You do not teach the class very much.
You dress funny.

Group 1. What are the forces that shaped the land?

Your group should construct detailed and instructive works for the following. You are also expected to understand the meaning of these diagrams. What do they show?

1. Schematic diagrams showing the cross sections of energy forces below the surface of the land (volcanoes, trenches, etc.)
2. Maps showing the land movement of the plates of the earth throughout earth history, focusing especially on the movement concerning Latin America.

Among the things you will need to find out:

1. Why are there mountains and volcanoes where they are in Latin America? (Why is this country full of highlands while Africa was mostly a land of plateaus?)
2. What are the natural hazards of the land? Why is there a persistent threat of earthquakes? What has to be done or has been done to accommodate this natural hazard?
3. How did the bridge between the Americas form? How has the movement of the earth's plates effected migration in Latin America (plant and animal)?
4. How does the earth produce the energy needed for all this colossal movement?

Group 2. What are the resources of the land?

Your group must find answers to and understand the following:

1. What are the animal, vegetable, mineral resources of the land? (Any oil?) How rich is the land for farming? Is there enough water? What food do they rely on and in what parts of Latin America do they use certain kinds of food?
2. Why do they have the kind of vegetation they have? Or, why are (or are not) the climate zones dry like Africa, which falls roughly on the same equatorial line and latitudinal lines as Latin America?
3. How do the seasons differ from those of North America?
4. How do Latin American birds and plants differ from those of Africa? Why do they have the adaptations, the differences they do? What special purpose do the unique plants of Latin America serve?

Your group must construct, and be able to discuss the meaning of, maps or diagrams showing the following:

1. The vegetation/climate zones in Latin America.
2. The atmospheric currents and important ocean currents which influence climatic zones in Latin America. You may need to include average rainfall statistics.
3. The hydrologic cycle.
4. The important resources and where they are found.

Group 3. Where do the people live on the land?

Your group is responsible for finding out:

1. Where did the first societies (and first migrant people) live in Latin America? Why there? How could people have migrated to Latin America? Could people have come from Africa?
2. Where was the population living around 1800-1850? What groups were living where? Why there? (Consider especially the groups/races of people throughout the West Indies and all of Latin America.)
3. Where do people live today? Why? What are the different groups/races living in Latin America today? Where do different language groups/races live today? What effect does that have on the countries in Latin America?

Your group must be able to construct and fully explain the following:

1. A map of the populations for each of the three questions above. Question 3 may require more than one map if you think it is necessary, or a clear overlay.

Thanks to Chet Pielock and Loretta Brady at Adelphi Academy, Brooklyn, New York

in a summer workshop on exhibitions for Essential School teachers. "To ask about validity is to ask if the task represents the *real thing* we want to assess. Does it really present the student's abilities, traits, capacity for long-term work? For example, the SAT is valid because it statistically correlates with later success in college. But does it really represent the things the student *can* be good at, or just one thing?"

Reliability is another question, says Wiggins. "Would the student get the same score if he took the test again and gave the same performance?" he asks. "Or would different people score it differently? Standardized tests are reliable by design, but we question their validity. Exhibitions, on the other hand, are valid—but not necessarily reliable. How do we protect students from capricious, biased judgments?"

A related question is whether there must be one standard for the success of a student performance. Should standards vary according to the performer's level of intelligence, age, sex, race, family circumstances, future plans? "The failure to think through this question has led to us having no standards at all," Wiggins argues. "You can walk into any high school in America and see two teachers grade the same level work in dramatically different ways."

When students learn to assess themselves, they internalize the criteria and become better performers and critics.

But teachers who use exhibitions in the classroom speak in matter-of-fact terms about how they evaluate student performance. "You've got to decide what's being graded ahead of time, and be clear about it with the student," says Melinda Nickle. "We assess the way they work, the way they use their time, the way they speak and write, the ideas they bring to the performance—things that cannot be evaluated by a typical pen and paper test." Moreover, Nickle says, students are usually working in groups as they prepare their performances, freeing her to circulate, ask questions, and ascertain weaknesses and strengths.

"I don't question the accuracy of our assessment," Nickle says. "It actually is a lot more valuable than the traditional test, where what you mostly find out is if the student can memorize well or if he studied the night before. In fact, many students new to our program are unsettled by how high our expectations are—it is hard to get by without getting actively engaged in the learning."

Nickle is one of many teachers who require students to participate in their own assessments. "When a student presents an exhibition in my class," she says, "they might start out mumbling or speaking too fast. I say, 'go slow, breathe deeply,' and remind them that they are practicing speaking skills. Pretty soon the other students are prompt-

Figure 4. A Final Performance in History and English

Your final exhibition to demonstrate mastery of the material of these two courses for the first semester will be divided into two parts. The first part is a research paper. The second part is the final examination. Together these constitute 25% of your grade for English and 20% of your grade for World History.

1. For the research assignment, write a five to seven page paper addressing the following: "What matters in history is not societies or events, but individuals." Discuss the validity of this concept of history by citing at least three specific examples from your studies this semester that support or refute the concept.

Your paper will be graded by both your history and your English teacher and a grade assigned by each, based on the standards in the "Written Exhibition Assessment Form," attached.

2. The final examination will be taken during the period scheduled for the English examination. It will consist of three parts:

a. An essay evaluating your research paper, both in content and mechanics. You will read the attached excerpt on subjectivity, objectivity, relativity, and balance in academic writing (pages 6-7 from Toby Fulwiler, *College Writing* Boston: Scott, Foresman, 1988). As you read it think how the points he makes apply to his research paper. Then write an essay reflecting on how these ideas are illustrated by your paper. Specifically, you need first to prepare a topic outline, including a thesis statement for the essay. Then summarize in your own words each of Fulwiler's main points, and cite at least one specific example from your research paper of each of these points. Where you identify subjectivity or use of judgment in your paper, discuss whether there was adequate evidence in your paper to support these subjective statements. Finally discuss why you think you made these particular subjective statements. In other words, how did one of your personal values enter into the research and writing of the paper?

b. An essay relating your English course readings to the thesis of your research paper. This will also involve an analysis of a short, related work during the final.

3. During the period scheduled for your history final examination, you will meet with both your history and English teacher to discuss your course work for the semester, your research paper, and your final examination.

Thanks for this performance to John Bohannon, a history teacher at Vermont Academy who attended a CES exhibitions workshop. (Vermont Academy is not a member of CES.)

ing them, too." Math teacher Glynn Meggison at Fox Lane High School in Bedford, New York has begun to invite his classes to grapple with self-evaluations. "One kid broke it down into actual percentages: quality of group work, individual work, presentation," he says. Such activities are themselves a form of learning, teachers say, as students internalize the criteria, they become better performers and better critics of others' performances.

The question of skill levels points up both a practical problem of comparative grading and a fundamental issue in education: the tracking of students early on into ability groups that will classify them for years to come. No one quarrels with the reality that students present themselves at different levels, but Wiggins argues that conventional means of grading —the bell-shaped curve, norm referenced standardized tests, and tracking—merely discourage students from reaching toward higher goals. Again, he contrasts the academic model with the world of sports or the arts, where expert players are always before students as models of the excellence they are striving for.

Figure 5.
The APU Assessment of Mathematics (Great Britain)

The following section comes from the assessor's manual in an oral mathematics test of 15-year-olds, involving the ideas of perimeter, area, and circumference:

1. Ask: "What is the perimeter of a rectangle?" *[Write student answer.]*
2. Present sheet with rectangle ABCD. Ask: "Could you show me the perimeter of this rectangle?" *If necessary, teach.*
3. Ask, "How would you measure the perimeter of the rectangle?" *If necessary, prompt for full procedure. If necessary, teach.*

. .

10. "Estimate the length of the circumference of this circle."
11. "What would you do to check your estimate?" *(String is on the table.) If no response, prompt for string.*

. .

13. "Is there any other method?" *If student does not suggest using* $C=\pi d$ *prompt with,* "Would it help to measure the diameter of the circle?"

The scoring system works as follows:

1 unaided success
2 success following one prompt from the teacher
3 success following a series of prompts
4 teaching by the tester, prompts unsuccessful
5 an unsuccessful response, tester did not prompt or teach
6 an unsuccessful response despite prompting and teaching
7 question not given
8 unaided success where student corrected an unsuccessful attempt without help

Successful responses are combined into two larger categories called "unaided success" and "unaided plus aided success," with percentages given for each.

From Mathematical Development, Secondary Survey Report #1, Assessment of Performance Unit (APU), Department of Education and Science, Great Britain (198[illegible])

Instead of giving watered-down challenges at lower skill levels, the same tasks are presented to all students, just as they are in real-life situations.

At Central Park East Secondary School in New York, students in a class of mixed ability levels set goals with the teacher ahead of time to aim for either a "competent" or "advanced" level of classroom performances, and they are evaluated accordingly. Instead of presenting watered-down challenges for lower skill levels—"dumbing down" the tests, as Grant Wiggins calls it—the same tasks are presented to all students, just as they are in real life situations, and extra help given where necessary. The student can thus *learn from tests*—and learn as he will in real life, from the more sophisticated responses of those at more advanced levels.

With clear objectives for pupil achievement, teachers can be more confident that grades really give direct information about where the student stands at that moment and where she is going next. This approach has been probably most carefully worked out in Great Britain, where a comprehensive national curriculum and testing system has been under development for some time. The system provides step-by-step instructions for teachers to assess students at varying levels of ability. These guidelines actually ask teachers to prompt students if they cannot answer a question on their own and, if necessary, to *teach* the appropriate skill then and there. (See Figure 5.) Answers are calibrated on a scale that divides them into two large categories—"unaided success" and "aided success"—within which students are rated further according to the level of their performance.

It seems clear that the careful devising of scoring rubrics is a crucial step in beginning to evaluate student performances. One characteristic of a good scorecard is that it honors a variety of aspects of the student's performance. Is the student's work *process* being evaluated, for example, or merely the *product*? Are enterprise, flair, and creativity given equal weight with perseverance and carefulness, and are those weighted equally with achievement? Does the fluent speaker have as good a chance to excel as the fluent writer, the creative artist as good a chance as the computer whiz? The best performances are authentic reflections of a student's development of thoughtful habits of mind; they honor and use that student's unique qualities rather than force them into

One characteristic of a good scorecard is that it honors a variety of aspects of the student's performance.

a predetermined mold. (Richard Stiggins of the Northwest Regional Educational Laboratory has developed a short manual on how to design and develop performance assessments; it can be had for $1 by writing NCME, Teaching Aids ITEMS Module #1, 1230 17th St., NW, Washington, DC 20036.)

The Performance Task Development Process

Connecticut State Department of Education
Common Core of Learning Assessment Project

For more information about The Performance Task Development Process, contact:

Joan Boykoff Baron
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The Performance Task Development Process

1. **Start with an idea........**

   From a textbook or other book
   From a newspaper or magazine article
   From a life experience
   From conversation with colleagues or others
   Random thought
   Divine inspiration

2. **Test the idea........**

   Is it important? Does it center on an important concept or issue in science?

   Is it contextualized? Does it tie the concept or issue to real life? Does it lead students to deal with the concept or issue instead of just memorizing it.... does it make students use it, understand it, explain it to others, or otherwise take some ownership of it?

3. **Begin converting the idea into a prompt.........**

   Define the objectives of the task. What will this prompt tell you about students? What knowledge/skills/abilities/attitudes/attributes will students have to display in order to successfully handle this task?

   Write a complete prompt statement, including task statement, purpose, and suggestions to students on strategy and focus. Keep your original objectives in mind throughout! Try to focus the prompt in the direction of these objectives.

4. **Consider embellishments........**

   Can the problem be made "multi-media" (e.g., multiple performances or products around the same theme). Consider written exercises or reports, oral reports, group discussions or performances, student logs or portfolios, self-assessments, etc.

   Can the task be structured to elicit attitudes and attributes which can be measured (e.g., group cooperation, persistence, resourcefulness, etc.)?

   Can the task be structured to include a group activity?

5. **Consider what a teacher will need to know to administer the prompt........**

   Where does this task fit into the curriculum? What needs to be taught before the prompt is administered?

   What materials and equipment are needed?

   What problems or difficulties are likely to occur?

What kinds of assistance or intervention should the teacher be prepared to provide? What kinds of assistance should the teacher not provide? How should such interventions be treated in scoring?

Develop NOTES TO TEACHER to include all of the above.

6. **Design a scoring approach to the problem........**

   Consider your original objectives -- how will they show themselves in students' responses?

   Decide whether you are assessing processes or products.

   Identify either dimensions of performance or aspects of the product which (a) reflect the objectives you had for the prompt; and (b) can be observed and rated with reasonable objectivity.

   Weight the dimensions in proportion to their importance, using your own judgement and that of colleagues.

   Develop levels of performance which you feel are likely to be present in student performance or products.

   Build a section within the prompt to communicate to students how their performance will be evaluated.

7. **Try the prompt out.........**

   Have one or more colleagues review it "cold" and critique it.

   Administer it in the classroom, in a relatively low-stakes setting:
   -- Get feedback from your students -- what was good or bad about the task? What would improve it?
   --Try out the scoring system. What was good/bad about it? How can it be enriched by the examples of performance you have now collected?

8. **Revise accordingly based on your experience........**

   Revise prompt structure and requirements
   Revise scoring system
   Expand NOTES TO TEACHER

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"Task" Design Ideas, Principles and Guidelines

Wiggins, G. (1991). *"Task" Design Ideas, Principles and Guidelines*. Geneseo, NY: Center on Learning, Assessment, and School Structure.

For more information about "Task" Design Ideas, Principles and Guidelines, contact:

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"Task" Design Ideas, Principles and Guidelines

Grant Wiggins
Center on Learning, Assessment & School Structure

The following pages contain design suggestions for direct assessment by performance, product, project, exhibition, or portfolio; and criteria for assessing whether a proposed task or set of tasks is "authentic."

The design ideas (or "templates") suggest the types of situations, simulations, roles, questions and problems that can be used to build authentic and engaging challenges for any subject matter or age group.

Common to all the design ideas are three principles:

1) "higher-order" thinking and acting require that students produce "unique products or performances" (in the words of Bloom et al.)

2) assessment tasks should teach: the best 'tests' educate students about the types of challenges actually encountered 'in the field' when professionals are called upon to use knowledge effectively and imaginatively.

3) authentic tasks require the kinds of judgments that are routinely called for in real-world 'tests' of knowledge. The best 'answers' are sensitive to the context of the situation: 'audience', particular constraints and purpose of the setting, appropriate precision, cost/benefit considerations, etc.

The ideas that follow are meant to be more than interesting, optional provocations. The assumption is that districts and schools would develop ***blue-printing policies*** *for how all assessments should be constructed to ensure that they are maximally authentic, "higher-order," valid and reliable; and thus articulated with system outcomes and performance standards.*

A. Designing authentic tasks & portfolios: Guiding Questions

1. TEST TASKS

What work is 'authentic' - worth having students practice & master?
What tasks simulate the challenges of knowledge-in-use?

2. THE SET OF TASKS

Is our proposed set of performance and product requirements a valid sample?
Do they provide sufficient information from which to draw valid generalizations?

3. CRITERIA

Are the essential aspects of successful performance emphasized in the scoring system (vs. what is easy to see or score)?
Are we clearly emphasizing quality craftmanship (vs. mere compliance) in the criteria?

4. THE TESTING CONTEXT

Are the testing constraints authentic?
Are inauthentic prior secrecy and arbitrary limits on time & resources maximally reduced?
Is there appropriate opportunity to revise, refine, ask questions, and meet high standards?

5. STANDARDS

Are our expectations apt but high?
How is the scoring benchmarked: by what appropriate examples, models or products is our scoring 'anchored'?
Is there approproiate uniformity in teacher testing and grading?
Do our grading and promotion standards demand and evoke quality products and performances from all students?

B. "Higher-Order performance verbs" for use in design

Discern a Pattern	Infer a Relationship
Adapt to and Reach Audience	Facilitate a Process & Result
Empathize with the Odd	Create an Insightful Model
Pursue Alternative Answers	Dis-prove a Common Notion
Achieve an Intended Aesthetic Effect	Reveal the Limits of an Important Theory
Exhibit Findings Effectively	Successfully Mediate a Dispute
Polish a Performance	Thoroughly Re-think an Issue
Lead a Group to Closure	Shift Perspective
Develop and Effectively Implement a Plan	Imaginatively & Persuasively Simulate a Condition or Event
Design, Execute & De-bug an Experiment	Thoughtfully Evaluate and Accurately Analyze a Performance
Make a Novice Understand What You Deeply Know	Judge the Adequacy of a Superficially-Appealing Idea
Induce a Theorem or Principle	Accurately Self-Assess and Self-Correct
Explore and Report Fairly on a Controversy	Communicate in an Appropriate Variety of Media or Languages
Lay Out "Cost-Benefit" Options	Complete a Cost-Benefit Analysis
Assess the Quality of a Product	Question the Obvious or Familiar
Graphically Display and Effectively Illuminate Complex Ideas	Analyze Common Elements of Diverse Products
Rate proposals or candidates	Test for accuracy
Establish principles	Negotiate a Dilemma
Make the Familiar Strange	Make the Strange Familiar

C. Other higher-order verbs[1]:

Analysis	Synthesis
break down, uncover, look into, dissect, examine, take apart, divide, simplify, induce, deduce, inspect, catalogue, classify, sift, search, screen, audit	combine, compile, build, re-order, compose, breed, conceive, blend, form, make up, construct, design, formulate, constitute, propose

D. "Synthesis" (according to Bloom et al.) is:

- the production of a unique communication
- the production of a plan or proposed set of operations
- the derivation of a set of abstract relations or principles

"Synthesis is a type of divergent thinking: it is unlikely that the right solution can be fixed in advance. Each student may provide a unique response to the questions or problems posed. It is the task of the evaluator to determine the merits of the responses"

"Problems should be as close as possible to the situation in which a scholar /artist / engineer etc. attacks a problem. The time allowed, conditions of work etc. should be as far from the typical controlled exam situation as possible."

[1] See *Evaluation to Improve Learning* by Bloom, Madaus, and Hastings (1981) McGraw-Hill for other ideas and examples of paper and pencil tasks for each level.

E. Tasks & Context for Assessing 'Synthesis':

1. "The task should be new or in some way different from those used in instruction.

2. Student may attack the problem with a variety of references or other available resources, as needed.

3. The adequacy of the final product may be judged in terms of

- the effect it has on the reader, observer or audience
- the adequacy with which it has accomplished the task; and/or
- evidence on the adequacy of the process by which it was developed."

"It is obvious that the student must have considerable freedom in defining the task for himself/herself, or in re-defining the problem or task"

"Teachers for synthesis objectives are no longer pedagogues. They are more like coaches, guides or master craftsmen working with apprentices."

F. Related questions for mathematical & scientific task framing[2]

Is there a formula?	*What is the formula?*
What purpose does the formula serve?	*What is the number of objects or cases satisfying this condition?*
Is there a pattern here?	*Is there a counter-example?*
Can the pattern be extended?	*What does it remind you of?*
How can we condense the information?	*Can we make a table?*
Can we prove it?	*When is it false? When true?*
What is constant? What is variable?	*Where does the proof break down in an analogous case?*

[2] From Brown & Walters, *The Art of Problem Posing.*

G. Simulations/Roles for task design

1. Museum Curator: Design museum exhibits, compete for "grant" money

2. Engineering designs:

   a. *bid & meet 'specs.'* : largest-volume oil container, MIT egg drop, etc.
   b. *apply theory:* design and build a working roller coaster, catapult in physics; local herbarium, etc.
   c. *mapping/surveying* a region around school, in buildings, etc.

3. Model UN

4. Historical re-enactments:

   a. Trials: Socrates, Scopes, Brown vs. Board, The Pied Piper
   b. "Meeting of the Minds" -- on shared event or theme
   c. Diaries: made up as if historical person present from another era
   d. "What if....?" writing/acting out different history scenario

5. Ad agency Director: Design advertising campaigns, book jackets, blurbs, etc. for the book(s) read in class

6. Tour Organizer/Cultural Exchange: Design travel, logistics and cultural guides for a world tour -- within a budget and time-frame

7. Psychologist/Sociologist: surveys, statistical analysis, graphing of results, writing newspaper article on meaning of results

8. Budgeting exercises, running a bank

9. Document Archaeology: "From what text/culture/time frame is this fragment?"

10. Person Archaeology: Who Am I? (given clues)

11. Essayist/Philosopher: Essential Questions

    "History: Evolution or Revolution?," "When is a generalization a stereotype and when not?" "Is a mathematical system an invention or a discovery?" "Does the 'heart know things the mind cannot'?" "Does History repeat itself?" "Are there Great Books, and if so by what criteria?" etc. -- leading to research, debate & products

12. Newspaper editor and writer: articles and editorials

   a. Set in the studied historical time
   b. Making complex ideas and/or facts accessible to readers (Kuwait oil spill magnitude, Middle East background history, etc.)
   c. Multiple perspectives: editorial & many letters to editor from different perspectives

13. Historian:

   a. "Biased? Or just different?" Analyze and assess controversial accounts of historical events.
   b. Conduct an oral history
   c. Review 3 different textbooks on same events for accuracy
   d. Outline design of a "meaningful" textbook on US history for kids
   e. Predict a future event (simulate CIA or State Dept. analysis) in a current country

14. Product Designer: Conduct Research, Design Ad Campaign, Run Focus Groups, Present proposal to panel

15. "Job Interview" -- with portfolio – in which student tries to get hired for a specific job related to skills of current course (where interviewed by other students or teacher)

16. "If you understand it you should be able to teach it" – Teach younger children something you 'know'

17. "Expert testimony to Congress" e.g.: Are all aspirin alike and are advertising claims accurate? Should children's TV be regulated? etc.

18. Speak-Listen: Successfully communicate directions

19. De-bug: car engine, experimental design, garbled 'text'

20. Essay reviews: The medium is the message: compare and contrast same book/movie, poem/song, play/musical, etc.

21. Commercial Designer: Propose art work for public buildings

22. Merit Badges (Boy & Girl Scouts)

H. Product/Outcome Template Ideas[3]

add chapter to a book	advertisement	audiotape
autobiography	awards	biography
brochure	chart	children's book
classroom museum	collage	computer program
constitution	contract	correspondence
design proposal	detective story	diarama
editorial	essay	eulogy
fable	family tree	flag
flow chart	games/puzzles	graph
jokes	journal	last will and testament
map	memoir	mosaic
movie script	mural	museum exhibit
music video	musical instrument	news story
oral history	painting/drawing	petition/Bill of Rights
photo album	play script	poems
poster	puppets	recipe
relief map	report of current events	research paper
resumé/cover letter	review of books	rules of etiquette
scale model	scenery for play	scientific instrument
scrapbook	sculpture	shadow box
short story	slide show	song lyrics
survey	time capsule	time line
totem pole	terrarium	videotape

3 Many of these ideas courtesy of Heidi Jacobs, Teachers College, Columbia University.

II. WHAT IS "AUTHENTIC"?

A. "Authentic" assessment tasks:

1. involve engaging problems and questions of importance and substance, in which students must use knowledge (and construct meaning) effectively and creatively.

2. simulate the challenges facing workers in a field of study, or the real-life 'tests' of civic and personal life in which academic knowledge is required.

3. are non-routine and multi-faceted. Recall is insufficient: authentic tasks require a repertoire of knowledge, hence, good judgment in clarifying and solving the problem(s).

4. focus on the students' ability to produce a quality product and/or performance.

5. involve de-mystified criteria and standards; the test allows for thorough preparation, (accurate self-assessment and self-adjustment), by the student; apt resources are available; questions and tasks may be discussed and clarified, etc.

6. rely on trained assessor judgment, in reference to clear and appropriate criteria.

7. often involve interactions between assessor and student. Tests ask the student to justify answers or choices, and respond to follow-up or probing questions.

8. involve challenges where the effect of the product or performance, and sensitivity to audience and context, determine the quality of the result.

9. involve patterns of response and behavior: emphasis is on consistency of student work -- the assessment of habits of mind.

B. A GUIDE TO TASK DESIGN & TROUBLE-SHOOTING

Typical test	"Authentic" test task	Indicators of authenticity
requires correct responses	requires effective and justified responses	We assess whether the student is in control of the 'process' and the 'product' in terms of the aptness of the response & quality of the work, not just correctness of answers
Must be 'secure' (unknown in advance) to insure validity	*known* as much as possible in advance; the 'test' involves excelling at known, difficult tasks	The tasks, criteria and standards by which work will be judged are predictable or known -- like the recital piece, the play, the game, a graduate oral exam, engines to be fixed, proposals to a client, etc.
Disconnected from a realistic context	effective *use* of the knowledge required: the student must 'do' history, science, etc.	A question or challenge likely to be encountered by the professional, citizen or consumer -- 'test' of know-how-in-use, embedded in a set of performance obligations
isolated 'items' requiring recognition of correct answer or use of one skill or theory	a challenge in which knowledge to be tested must be used in *fashioning a quality product or performance*	The task is multi-faceted and complex. Even if there is a 'right answer', the task requires problem-clarifying, planning, trial and error, adapting the facts to the case at hand, etc.
simplified so as to be easy to score objectively	essential, core challenge; modified as necessary for developmental appropriateness	Involves the important aspects of performance or core challenges of the field of study, not the easily-scored; requires careful judgement in scoring
superficial and/or one-shot	in-depth, longitudinal	Reveals whether the student has achieved real vs. pseudo- mastery
validity through correlation or 'content' match	validity thru aptness and realism of task and context	A fair and revealing test as judged by experts in the field; has face validity to teachers and students; evokes maximal interest and persistence

C. Assessment Design Critique Sheet

Rate any proposed task for the following qualities:

		high degree				low degree
a.	Non-routine & rich (vs. simplistic) judgement required; able to be personalized; a variety of responses are appropriate	5	4	3	2	1
b.	Understandable goal (vs. overly 'secure') able to be known and practiced without compromising validity	5	4	3	2	1
c.	Knowledge in use (vs. recall or plug in) a task involving the 'doing' of the subject, performing; not just being tested on facts	5	4	3	2	1
d.	Integrative tasks (vs. isolated items) a <u>repertoire</u> of knowledge is required for fashioning quality responses, products or performances	5	4	3	2	1
e.	Essential (vs. easy to test or score) task goes to the heart, the 'big ideas' of the subject matter; scoring emphasizes what is important to the task done well	5	4	3	2	1
f.	Insightful (vs. superficial view of ability) gives insight into student thinking and habits; a valid test of what the student knows and can do in day-to-day performance	5	4	3	2	1
g.	Educative Challenge (vs. valid proxy) task has 'face validity'; an apt and evocative direct challenge of the curricular tasks and their purpose	5	4	3	2	1

Mathematics and Science

Assessment Alternatives in Mathematics

Jean Kerr Stenmark
California Mathematics Council and EQUALS

For more information about Assessment Alternatives in Mathematics, contact:

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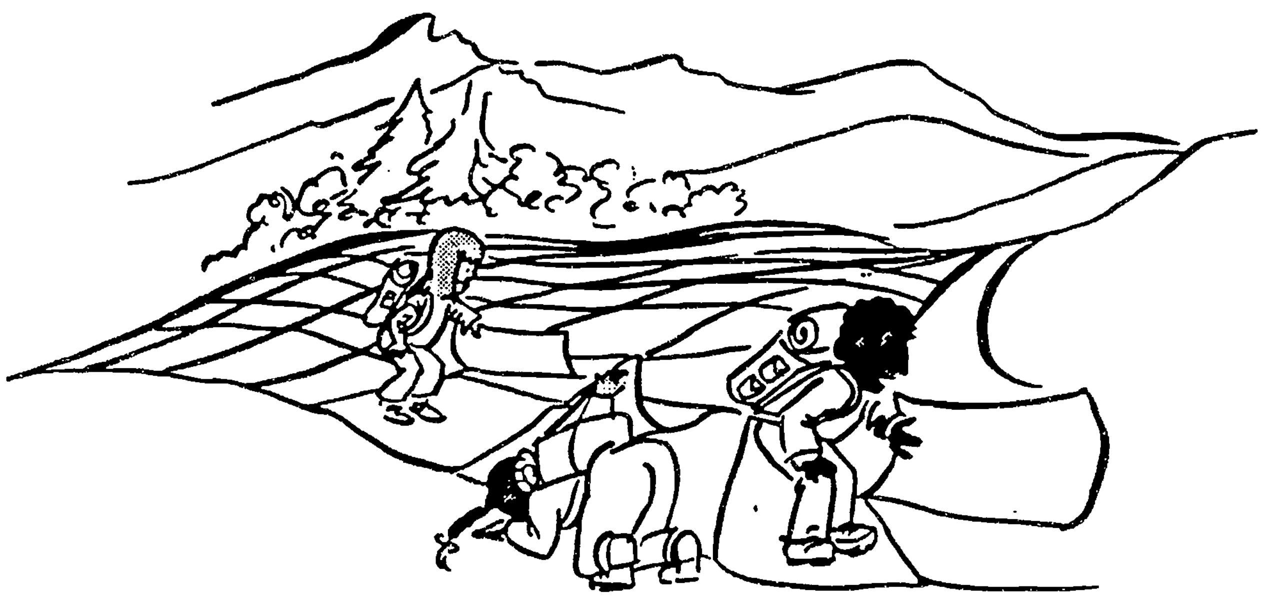
ASSESSMENT ALTERNATIVES in MATHEMATICS

An overview of assessment techniques that promote learning



Prepared by the EQUALS staff
and the Assessment Committee of the
California Mathematics Council
Campaign for Mathematics

Jean Kerr Stenmark

OPEN-ENDED QUESTIONS

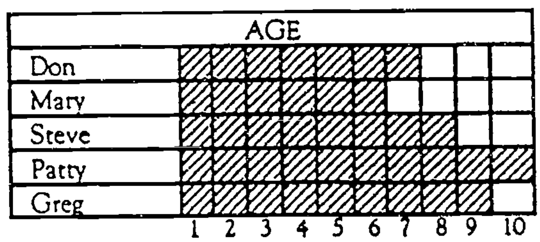
Open-ended Questions

An open-ended question is one in which the student is given a situation and is asked to communicate (in most cases, to write) a response. It may range from simply asking a student to show the work connected with an addition problem to complex situations that require formulating hypotheses, explaining mathematical situations, writing directions, creating new related problems, making generalizations, and so on. Questions may be more or less "open" depending on how many restrictions or directions are included.

Examples:

Open-ended questions help match assessment to good classroom questioning strategies. Here are some examples:

For Grades 1- 4



Look at this graph. Explain what the graph might mean.

For Grades 4 - 9

Luke wants to paint one wall of his room. The wall is 8 meters wide and 3 meters high. It takes one can of paint to cover 12 square meters, and the paint is sold at two cans for $9. What else does Luke need to consider? Make a plan for this painting job.

For Grades 6 - 12

A friend says he is thinking of a number. When 100 is divided by the number, the answer is between 1 and 2.

Give at least three statements that must be true of the answer. Explain your reasoning.

Advantages of Open-ended Questions

There is a wealth of information to be gained from this kind of assessment. The variety of acceptable thinking reflected in student responses goes far beyond what may be imagined. Misconceptions can be detected. We learn whether students can:

- recognize the essential points of the problem involved
- organize and interpret information
- report results in words, diagrams, charts, or graphs
- use appropriate mathematical language and representation
- write for a given audience
- make generalizations
- understand basic concepts
- clarify and express their own thinking

GENERAL SCORING RUBRIC for OPEN-ENDED QUESTIONS

Used for Grade 12 CAP questions

Please Note: For each individual open-ended question, a rubric should be created to reflect the specific important elements of that problem. This general rubric is included only to give examples of the kinds of factors to be considered.

Recommendations: Sort papers first into three stacks: Good responses (5 or 6 points), Adequate responses (3 or 4 points), and Inadequate responses (1 or 0 points). Each of those three stacks then can be re-sorted into two stacks and marked with point values.

Demonstrated Competence

Exemplary Response . . . Rating = 6
Gives a complete response with a clear, coherent, unambiguous, and elegant explanation; includes a clear and simplified diagram; communicates effectively to the identified audience; shows understanding of the open-ended problem's mathematical ideas and processes; identifies all the important elements of the problem; may include examples and counterexamples; presents strong supporting arguments.

Competent Response . . . Rating = 5
Gives a fairly complete response with reasonably clear explanations; may include an appropriate diagram; communicates effectively to the identified audience; shows understanding of the problem's mathematical ideas and processes; identifies the most important elements of the problems; presents solid supporting arguments.

Satisfactory Response

Minor Flaws But Satisfactory . . . Rating = 4
Completes the problem satisfactorily, but the explanation may be muddled; argumentation may be incomplete; diagram may be inappropriate or unclear; understands the underlying mathematical ideas ; uses mathematical ideas effectively.

Serious Flaws But Nearly Satisfactory . . . Rating = 3
Begins the problem appropriately but may fail to complete or may omit significant parts of the problem; may fail to show full understanding of mathematical ideas and processes; may make major computational errors; may misuse or fail to use mathematical terms; response may reflect an inappropriate strategy for solving the problem.

Inadequate Response

Begins, But Fails to Complete Problem . . . Rating = 2
Explanation is not understandable; diagram may be unclear; shows no understanding of the problem situation; may make major computational errors.

Unable to Begin Effectively . . . Rating = 1
Words do not reflect the problem; drawings misrepresent the problem situation; copies parts of the problem but without attempting a solution; fails to indicate which information is appropriate to problem.

No Attempt . . . Rating = 0

PERFORMANCE ASSESSMENT

Students Doing Mathematics

Performance assessment involves giving a group of students, or an individual student, a mathematical task that may take from half an hour to several days to complete or solve. The object of the assessment is to look at how students are working as well as at the completed tasks or products.

An observer or interviewer may stay with the group or make periodic visits. Activities may be videotaped, tape recorded, or recorded in writing by an adult or students. The task might be from any mathematical content area and might involve other subjects such as science or social studies.

Assessment Forms

Performance tasks can be supervised by regular classroom teachers or outside observers. Focusing on a group of students or a single student, the assessment may take many forms, such as:

- presenting students with a problem related to what they are already doing in class, and listening to the responses
- observing what students do and say, watching for selected characteristics, making anecdotal records
- interviewing students during or after an investigation
- collecting student writing, either as it is generated by the problem or in response to an additional question

Advantages of Performance Assessment

Looking at student performance gives information about their ability to:

- reason soundly and raise questions
- persist, concentrate, and work independently
- observe, infer, and formulate hypotheses
- think flexibly, changing strategies when one doesn't work
- use manipulative materials, equipment, calculators, and computers
- work together in groups
- communicate and use mathematical language through discussing, writing, and explaining their ideas in their own words
- use estimation
- detect and use patterns
- design and conduct experiments and investigations
- collect, organize, and display information
- get excited about mathematics

... one can reliably judge scientific understanding by observing student teams in a laboratory. Effective means of assessing operational knowledge of mathematics must be similarly broad, reflecting the full environment in which employees and citizens will need to use their mathematical power. (Everybody Counts, p. 69)

PERFORMANCE ASSESSMENT (continued)

Below is an adapted version of an item from the 1986 National Assessment of grades 7 and 11. It was reported in the booklet, *Learning by Doing: A Manual for Teaching and Assessing Higher-Order Thinking in Mathematics and Science*. Students were given a permanently assembled double staircase four blocks high and some loose blocks. There were not enough blocks to build the staircase ten blocks high. The questions are typical of those that might be asked orally by an examination administrator.

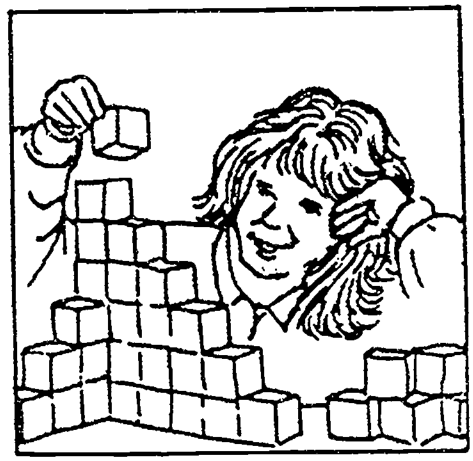
HOW MANY BLOCKS ARE IN THE DOUBLE STAIRCASE?

Work with a partner.

1) Look at the double staircase of blocks. How many blocks are in the staircase?

2) How many blocks would you need to build a similar staircase 10 blocks high? How did you figure out your answer?

3) What is the relationship between a similar staircase of any height and the number of blocks needed to build it?



For copies of the booklet and other information, write to
NAEP
CN 6710
Princeton, NJ 08541-6710

This is only one example of performance tasks. Almost any problem on which students work can include assessment, once we decide what to look for. Some examples:

We have reached into this bag of blocks 6 times and have pulled out 3 red blocks, 1 green block, and 2 blue blocks. If you reached into the bag and pulled out another block, what color do you think it would be? Explain why you think it would be that color. How could you get more information?

- Do students have a systematic way of organizing and recording information?
- Do they relate this problem to other similar problems?
- Are they able to express their ideas orally or in writing?
- Are they able to come up with ideas (other than looking in the bag!) for getting more information?

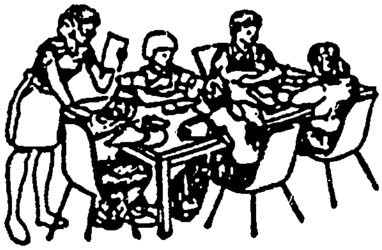
There are 30 students in our class. The office has given us 144 pencils and 24 erasers as our supply for the year. How can we be sure we will still have pencils and erasers at the end of the school year?

- Are students able to make a plan?
- Can they decide when to use a calculator, and then use it effectively?
- Does everybody in the group participate?
- Do students look at all factors of the problem, or do they jump to conclusions?
- Do students use blocks or other materials appropriately?
- Do they make notes or drawings to check their results?
- Do they recognize and use the complexities of the problem?

This is a page from *Assessment Alternatives in Mathematics*, a booklet from the California Mathematics Council and EQUALS.

OBSERVATIONS (adapted from *Assessing Mathematical Understanding*, Project T.I.M.E.)

Focused Observations



Observation, to be effective and illuminating, and to enable the observer to draw some inferences about the students, should frequently be quite sharply focused. Attention to specific details may lead to unexpected insights into a student's understanding.

Students should be observed both individually and as they work in groups. The purpose of an observation may be for mathematics (How far can students count with one-to-one correspondence?) or for affective characteristics (Does this child's behavior help his learning?).

Student Learning Styles

Individuals - Do the individuals:
- consistently work alone or with others?
- try to help others? in what ways?
- succeed in asking for and getting needed help? from whom?
- stick to the task or become easily distracted?
- become actively involved in the problem?

Student Ideas

Explanations - Do the individuals:
- try to explain their organizational and mathematical ideas?
- support their arguments with evidence?
- consider seriously and use the suggestions and ideas of others?
- attempt to convince others that their own thinking is best?

Communication

Verbalization - Do the students:
- talk for self-clarification and to communicate to others?
- comfortably fill the role of both "talker" and "listener?"
- have the confidence to make a report to the whole class?
- capably represent a group consensus as well as their own ideas?
- synthesize and summarize their own or a group's thinking?

Cooperation

Cooperation - Does the group:
- divide the task among the members?
- agree on a plan or structure for tackling the task?
- take time to ensure that they all understand the task?
- use the time in a productive way?
- provide support for each member?
- think about recording?
- allow for development of leadership?

Manipulatives

Manipulatives - Individually or within the group, do the students:
- choose and use appropriate manipulatives?
- fairly share the handling of concrete objects, especially if there is one set for the group as a whole?
- sometimes use the manipulatives only visually? (e.g. count the red faces of a cube without picking it up)
- appear not to need the actual objects but be able to visualize within themselves? (e.g. can "see" the cube in her head)

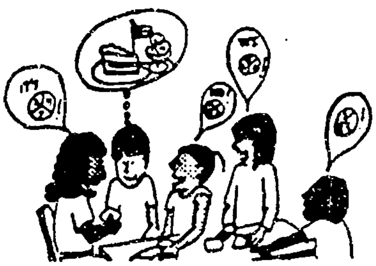
This is a page from *Assessment Alternatives in Mathematics*, a booklet from the California Mathematics Council and EQUALS.

INTERVIEWS (adapted from *Assessing Mathematical Understanding*, Project T.I.M.E.)

Assessing Understanding

When assessing mathematical understanding, an assessor, whether teacher or outside evaluator, is trying to get a picture of the student's own thinking rather than whether the student can provide the "correct" answer that the adult has in mind. The interviewer wants to know the depth of the student's understanding. Is the student parroting back memorized responses, or has the student personally interacted with the ideas and incorporated them into his or her own conceptual structures?

Questioning Students



Assessment questioning can be brief and informal as in many typical classroom interactions between teacher and students; or it can occur over a more extended period of time where an interviewer really probes to get at what's going on in the student's mind. Interviewing/questioning for mathematical understanding can be done with individual students or groups of students. An adult may observe the students for a while and then, based on what was observed, intervene and ask questions about what the student is doing or how the student perceives the situation.

Plan for Interviews

The logistics of time, people, and curriculum mean planning is necessary for interviews. While students are working on a problem, project, or investigation, an observer/interviewer may observe and question one group of students, taking notes either during the observation/interview or as soon as possible afterwards. Student interviews may also be done by adults other than the teacher outside of the classroom, or at recess or before or after school.

Question Sequence

The interviewer must first find a level of understanding at which the student is comfortable. It is generally better to start asking broad general questions rather than specific narrow ones. Follow-up questions should gradually become more specific as the teacher tries to "zero in on" what makes sense to the student.

Time for Thinking

An important facet of interviewing is the use of wait time — the time allowed for a student to think through a response or to reconsider a response already made. Real thinking takes time.

Multiplication Example

If we wanted to know, for example what a sixth or seventh grade student knows about multiplication, we might ask the student (with manipulative materials and calculators available) to:

- solve a problem in which multiplication can be used
- explain to a younger student what multiplication means
- give an example of a real life situation where 6 x 8 is used
- explain how multiplication relates to addition and/or division

Formal or Interactive Interviews

Assessment by interview may be formal, in which case questions are prepared ahead of time, leading questions might or might not be asked, feedback may not be desirable, and records are kept. Interview assessment may also be an informal regular part of teaching, with more interaction between teacher and student.

This is a page from *Assessment Alternatives in Mathematics*, a booklet from the California Mathematics Council and EQUALS.

ASKING QUESTIONS

Asking the right question is an art to be cultivated by all educators. Low-level quizzes that ask for recall or simple computation are a dime a dozen, but a good high-level open-ended question that gives students a chance to think is a treasure!

These questions might be used as teaching or "leading" questions as well as for assessment purposes. Both questions and responses may be oral, written, or demonstrated by actions taken. The questions and their responses will contribute to a climate of thoughtful reflectiveness.

Some suggestions about assessment questioning:

- Prepare a list of possible questions ahead of time, but, unless the assessment is very formal, be flexible. You may learn more by asking additional or different questions.
- Use plenty of wait time; allow students to give thoughtful answers.
- For formal assessment, leading questions and feedback are not generally used, although some assessment techniques include teaching during the examination.
- Make a written record of your observations. A checklist may or may not be appropriate.

This is a starter list. You will want to build a collection of your own good questions.

Problem Comprehension
Can students understand, define, formulate, or explain the problem or task? Can they cope with poorly defined problems?

- What is this problem about? What can you tell me about it?
- How would you interpret that?
- Would you please explain that in your own words?
- What do you know about this part?
- Do you need to define or set limits for the problem?
- Is there something that can be eliminated or that is missing?
- What assumptions do you have to make?

Approaches and Strategies
Do students have an organized approach to the problem or task? How do they record? Do they use tools (manipulatives, diagrams, graphs, calculators, computers, etc.) appropriately?

- Where could you find the needed information?
- What have you tried? What steps did you take?
- What did not work?
- How did you organize the information? Do you have a record?
- Did you have a system? a strategy? a design?
- Have you tried (tables, trees, lists, diagrams...)?
- Would it help to draw a diagram or make a sketch?
- How would it look if you used these materials?
- How would you research that?

Relationships
Do students see relationships and recognize the central idea? Do they relate the problem to similar problems previously done?

- What is the relationship of this to that?
- What is the same? What is different?
- Is there a pattern?
- Let's see if we can break it down. What would the parts be?
- What if you moved this part?
- Can you write another problem related to this one?

Flexibility
Can students vary the approach if one is not working? Do they persist? Do they try something else?

- Have you tried making a guess?
- Would another recording method work as well or better?
- What else have you tried?
- Give me another related problem. Is there an easier problem?
- Is there another way to (draw, explain, say, ...) that?

This is a page from *Assessment Alternatives in Mathematics*, a booklet from the California Mathematics Council and EQUALS.

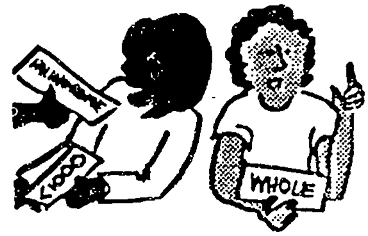
ASKING QUESTIONS (continued)

Communication
Can students describe or depict the strategies they are using? Do they articulate their thought processes? Can they display or demonstrate the problem situation?

- Would you please reword that in simpler terms?
- Could you explain what you think you know right now?
- How would you explain this process to a younger child?
- Could you write an explanation for next year's students (or some other audience) of how to do this?
- Which words were most important? Why?

Curiosity and Hypotheses
Is there evidence of conjecturing, thinking ahead, checking back?

- Can you predict what will happen?
- What was your estimate or prediction?
- How do you feel about your answer?
- What do you think comes next?
- What else would you like to know?



Equality and Equity
Do all students participate to the same degree? Is the quality of participation opportunities the same?

- Did you work together? In what way?
- Have you discussed this with your group? with others?
- Where would you go for help?
- How could you help another student without telling the answer?
- Did everybody get a fair chance to talk?

Solutions
Do students reach a result? Do they consider other possibilities?

- Is that the only possible answer?
- How would you check the steps you have taken, or your answer?
- Other than retracing your steps, how can you determine if your answers are appropriate?
- Is there anything you have overlooked?
- Is the solution reasonable, considering the context?
- How did you know you were done?

Examining Results
Can students generalize, prove their answers? Do they connect the ideas to other similar problems or to the real world?

- What made you think that was what you should do?
- Is there a real-life situation where this could be used?
- Where else would this strategy be useful?
- What other problem does this seem to lead to?
- Is there a general rule?
- How were you sure your answer was right?
- How would your method work with other problems?
- What questions does this raise for you?

Mathematical Learning
Did students use or learn some mathematics from the activitiy? Are there indications of a comprehensive curriculum?

- What were the mathematical ideas in this problem?
- What was one thing you learned (or 2 or more)?
- What are the variables in this problem? What stays constant?
- How many kinds of mathematics were used in this investigation?
- What is different about the mathematics in these two situations?
- Where would this problem fit on our mathematics chart?

Self-Assessment
Do students evaluate their own processing, actions, and progress?

- What do you need to do next?
- What are your strengths and weaknesses?
- What have you accomplished?
- Was your own group participation appropriate and helpful?
- What kind of problems are still difficult for you?

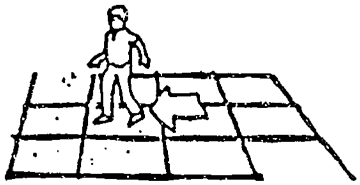
This is a page from *Assessment Alternatives in Mathematics,* a booklet from the California Mathematics Council and EQUALS.

STUDENT SELF-ASSESSMENT

The Gift of Independent Thinking

The capability and willingness to assess their own progress and learning is one of the greatest gifts students can develop. Those who are able to review their own performance, explain the reasons for choosing the processes they used, and identify the next step have a life-long head start. Mathematical power comes with knowing how much we know and what to do to learn more.

The Role of the Teacher



This does not mean, however, that teachers abdicate responsibility. Teachers must still help students understand what is needed, provide lessons or activities to meet their needs, identify ways for students to assess what they have done, set guidelines, and ask questions that will highlight the mathematical ideas that are important. The teacher is the stage manager.

Questionnaires

A simple example of self-assessment is a questionnaire following a cooperative activity or project, asking how well the group functioned and how well the student participated. The questions can focus each student's attention on how he or she performed, and can give the teacher the opportunity to talk with the class about successes or difficulties without having to identify individual behaviors. Some typical questions:

Describe the tasks you did for the group ______

What mathematics did you learn?______

How does this relate to what you have learned before?______

What could you have done to make your group work better?______

What worked well in your group?______

What new questions did this raise?______

Journal Writing

Still another self-assessment is daily writing in a journal, responding to such sentence starters as:

Today in mathematics I learned______

When I find an answer I feel______

My plan for what I will do tomorrow is______

Of the math we've done lately, I'm most confident about ___

What I still don't understand is ______

Feedback from Other Students

Students can help evaluate by giving constructive comments on one another's work. Looking at others' work helps students develop their sense of standards for their own performance.

For more questions, see page 24 and 25.

This is a page from *Assessment Alternatives in Mathematics*, a booklet from the California Mathematics Council and EQUALS.

STUDENT SELF-ASSESSMENT (continued)

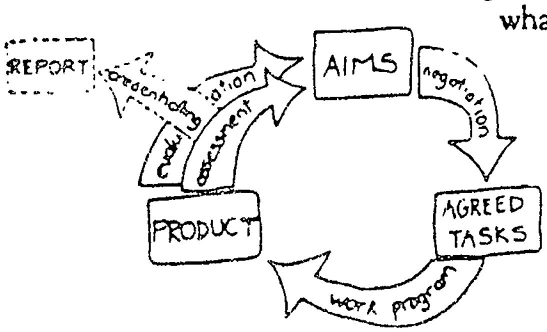
Self Assessment Develops with Practice

...the student needs practice in the form of multiple opportunities and formats for self-assessing. Especially at the start she needs experiences that will stir motivation and give direction to the self-assessment process by enabling her to see where she is, why she is there, and what she needs to go further.

Modes of self-assessment ...include checklists, short answers, paragraphs or essays, charting of what was done in the assessment and in what way, and directed self-learning followed by one-to-one interviews discussing the correlation between faculty assessment and student self-assessment. (Alverno College Faculty, Assessment at Alverno College, p. 13)

Negotiated Curriculum

An example of an integrated student self- assessment at the high school level is found in the Negotiated Curriculum used in Australia, which involves students with teachers in planning and assessing their learning. Students, with the help of teachers, identify their strengths and weaknesses and plan accordingly. The diagram below shows how students decide where they want to go, what they have to do to get there, and what the final results might be.



This diagram is from *Negotiating a Mathematics Course*, by Colleen Vale. See bibliography for more information.

The negotiation of the course — what the students are going to do to meet their aims — adds to the students' understanding of mathematics. The process of reaching decisions about what they will study and how they will do it, parallels some of the steps in problem solving: gathering information, collating and organizing data, interpreting information, forming options, considering implications, weighing advantages and disadvantages through conversation to reach consensus....Involving students in planning the course means that they are clear about what they are attempting to learn from the course...(Vale, Negotiating a Math Course, pp. 6-7)

Alverno College

A similar program for college students is described in the book, *Assessment at Alverno College*, by the Alverno College Faculty, listed in our bibliography.

For all students, the idea of self-assessment is not new. At any age, students can show surprising insight into what they know and what they need to learn.

A SAMPLER OF ASSESSMENT TECHNIQUES

Let us consider, for example, assessing the understanding of whole number multiplication. What do we want to know? What kinds of information would be most helpful? What is most important? How can we judge success? Do we need a number rating or grade? For what purposes? Specifically, what can we have the students do? What are we going to look for?
Are some of the following questions more important than others?

- Do students estimate before computing?
- Can students use a standard algorithm? Do they have a choice of several algorithms?
- Do they know when to multiply? Can they identify a situation that uses multiplication?
- Can they explain the process or thinking involved?
- Do they understand the relationship between multiplication and division?

A Typical Multiple-Choice Test Item:

59 x 12 =

- O 608
- O 698
- O 708
- O 798

A Multiple-Choice Item to Check Understanding of the Algorithm:

In the following multiplication problem, what number goes in the $\boxed{}$?

- O 708
- O 128
- O 118
- O 108

$$\begin{array}{r} 59 \\ \underline{\times 12} \\ \boxed{} \\ \underline{590} \\ 708 \end{array}$$

Observation and Interview:

Draw as many diagrams as you can that represent the multiplication fact

12 x 59 = 708

Explain to me what each means.

To Include in a Student Portfolio:

Write a word problem that would probably involve multiplying 59 x 12 for its solution.

A Performance Task:

(with blocks, beans, balance scales, tiles, graph paper, calculator, etc. available)

You are going to teach a second grader what multiplication is all about.
How would you go about this?
What materials would you like to use?
Show me what you would do.

This is a page from *Assessment Alternatives in Mathematics*, a booklet from the California Mathematics Council and EQUALS.

Here are more possible assessment problems.
Try them with your students.
From which do you learn most?

An Investigation:

Here is a multiplication fact:

$59 \times 12 = 708$

Create a presentation for the class about other mathematical ideas this relates to in some way. You may work alone or with others, and you may consult with other adults or any book in the library.

A Word Problem:

Which operation would be used to solve this word problem? Explain how you know.

Jenny has 4 different skirts and 6 different blouses. How many possible combinations does she have?

An Open-Ended Item:

Name two numbers larger than 10 that you think can be multiplied together to give the answer of 708. Explain how you decided on those numbers.

The hope for your pupils
is that they will be enabled
to engage in
real mathematical thinking
and to see behind the rules
and rote techniques
and appreciate a little
of the connected complexity
and insights
which go to building up
a deeper understanding
of mathematics.

(Pirie, Mathematical Investigations in Your Clasroom, p. 4)

Student Self-Assessment:

How well do you think you understand multiplication? Is there one part or idea you think you may need to work on more?

A Problem for a Group:

Design a test to find out whether the class understands the relationship between multiplication and division.

Building a Dog Pen
10th Grade Geometry Task

Connecticut State Department of Education
Common Core of Learning Assessment Project

For more information about Building a Dog Pen, contact:
Joan Boykoff Baron
Connecticut State Department of Education
Box 2219
Hartford, CT 06145

BUILDING A DOG PEN

SUMMARY OF THE TASK:
- Given 80 feet of fence, what is the largest area that can be enclosed to form a free standing dog pen?
- Given 36 square feet of area, which shape,a triangle, rectangle, square or circle uses most of the 80 feet of fence available for a free standing dog pen?

DEVELOPED BY: Deborah Ball
Michigan State University

COURSE: Geometry

GRADE/LEVEL: 10/standard

CURRICULUM TOPIC: The relationship between the area and perimeter of polygons. Students will develop understanding of these measures through investigating what happens to the area of an enclosed space, if the perimeter is held constant, and what happens to the size of the perimeter as the area is held constant, and in what cases does the area uniquely determine the perimeter. The ideas may be easily extended to understanding the relationship between measurements of solids.

PREREQUISITE KNOWLEDGE:
The concepts of perimeter and area, formulas for perimeter, circumference, and area;

EQUIPMENT NEEDED:
- graph paper
- string
- rulers
- tables (metric conversion tables may be needed)
- calculators

SUGGESTED LENGTH OF TIME: 2-3 days

IN CLASS: discussion, display, comparison of various solutions, explanation of solution

OUTSIDE OF SCHOOL: construction of display of solution

PARTICIPATION: group and individual

SCORING CRITERIA: individual as well as group

"The Dog Pen" was developed during the 1990-91 school year by the Connecticut State Department of Education with a grant from the National Science Foundation (SPA-8954692). The original idea was Deborah Ball's from Michigan State University. Judith Collison at the CSDE elaborated on that idea. Major reviewers were Steve Leinwand and Joan Boykoff Baron. For more information, contact Dr. Joan Boykoff Baron, Connecticut State Department of Education, Box 2219, Hartford, Connecticut 06145.

NAME____

BUILDING A DOG PEN

PART I (individual)

Mr. Garcia has a new dog named Cosco. He wants to build a pen in his backyard in which Cosco can play. His neighbor, who works at a building supply store, gives Mr. Garcia 80 feet of chain link fencing with which he can build a dog pen. Of course, Mr. Garcia wants Cosco to have as much space as possible. What is the largest pen he can build using exactly 80 feet of fence?

A. What is your hunch?

1. Do you think the shape of the dog pen makes a difference to the area, as long as Mr. Garcia uses all 80 feet of fencing to enclose the pen?

2. If your answer is *yes*, which shape would you use? Why? (Explain briefly and give your reasons below.)

GROUP MEMBERS: ______________________

____

____

____

B. Think, and test your hunch! (group)

You will work in groups of three or four. Once you have solved the problem you will display your solution and be prepared to discuss it with the rest of the class.

1) Meet with your group and discuss the problem. When you work with your partners, you may use any tools or strategies that you think are useful .For example, you may want to make some drawings, graphs, or tables; or use algebra to explore some of the possibilities. Use calculators for computations. When your group is sure that you have determined the largest dog pen, you should:

   a. Create a visual display of your solution, and the reasons why you think it is right. You will put this up on the wall for other groups to examine near the end of the period.

   b. Compare your results with the results and explanations of the of other groups. Each person in the group must be ready to discuss,explain and defend the group's strategies and solutions in class.

   c. During the class discussion, you should ask questions of other groups about their solutions and provide counterarguments for claims with which you disagree.

Based on the class discussion, what is the largest free standing* dog pen that can be built in Mr. Garcia's backyard, using 80 feet of fence?

*Free standing here means: not attached to the house or to an already existing fence.

GROUP MEMBERS: ______________________

____

____

____

PART II (group)

To answer Questions 2, 3 and 4 you will again work in groups. Once you have solved the problem you will display your solution and be prepared to discuss it with the rest of the class. Each of you should be prepared to explain all of your solutions.

2)

a) Suppose that Mr. Garcia can use exactly 36 square feet of the backyard. Which of the four shapes: circle, square, rectangle and triangle, will allow him to use up most of his 80 feet of fence in building a free standing dog pen? Give approximate dimension of at least two shapes. Explain, and demonstrate your answer.

b) Which shape, circle, square, rectangle and triangle will require the least amount of fence to enclose.

GROUP MEMBERS: ______________________

____

____

____

PART II (group)

3) What is the most general conclusion you can derive about the areas of figures with the same perimeter? Consider at least three different types of shapes with different number of sides. For example, you may look at triangles, rectangles, pentagons.. and so on. Explain.

4) a) What general conclusions can you arrive at about the perimeters of enclosed shapes with identical areas? Explain.

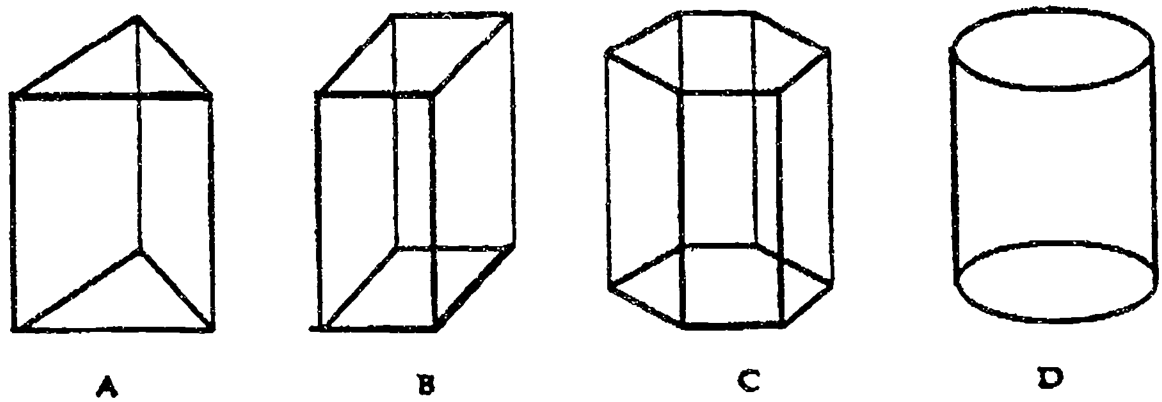
b) Does the area of some shapes uniquely determine their perimeter? Explain.

NAME____

PART III (individual)

5) On your own, figure out the following: The water will be shut off in your neighborhood because of repairs to the main pipes. You need to have some water set aside. Your neighbor offers to lend you one of four containers (see a,b,c,and d below).They are all the same height, but of different shapes. "Take the one that will hold the most water!" she urges you. Taking a piece of string you quickly measure the perimeter of each container. Their perimeters are all the same!

Without doing any calculations, decide which of the four containers you will borrow. Explain your reasons for your choice.



5) Suppose you love pizza, but you know your limits when it comes to pizza consumption. You happen to know that you can safely eat 36 square inches of the super special without getting sick. Also, while you really like the toppings, you are not as crazy about the thick crust around the edges. You have a choice of three differently shaped pizzas, each having 36 square inches surface area. One is in the shape of a triangle, one is square, and the third one is round. Which will give you the least crust? Which has the most crust? Explain fully.

NAME________________________________

7) Take two 8" x 10" pieces of paper.

•On the first one, attach the two shorter sides with some tape, to form a cylinder.

•On the second one, attach the two longer sides to form another, taller cylinder.

What do you think: will one of the cylinders, the short one or the tall one, have a greater volume, are the two volumes the same?

Using the dimensions of the paper and formula for the volume of a cylinder, check your answer. (Volume of cylinder = area of base x height)

Does the relationship between width and length of the paper influence the volume of the cylinder you can form? Explain.

Exploring the MapleCopter
10-12th Grade Physics Task

Connecticut State Department of Education
Common Core of Learning Assessment Project

For more information about Exploring the MapleCopter, contact:
Joan Boykoff Baron
Connecticut State Department of Education
Box 2219
Hartford, CT 06145

Exploring the MapleCopter

Summary of the Task	Students study the motion of maple seeds and design experiments to explain their spinning flight patterns.
Developed by	Michal Lomask.
Reviewers	Earl Carlyon, Jeffrey Greig, Joan Baron, Larry Brown, Mike Hibbard, Fred Myers, Avi Ornstein, and Joanne Soucy.
Course/Grade Level	Physics/10-12
Curriculum Topic	Laws of motion, aerodynamics, air resistance, and the use of models in explaining scientific phenomena.
Prerequisite Knowledge	Students should have some background knowledge of the laws of motion and the use of models in science. Students should have experience in cooperative group work and making oral presentations.
Equipment Needed	Maple Seeds, Paperboard, Stopwatches, Scissors, Paper clips, glue or tape, Metersticks
Suggested Length of Time	3-5 class periods.
Suggested Reading	Lunetta and Novick, 1982 *Inquiry and Problem-solving in Physical Sciences: A Sourcebook.*

For more information contact:
Dr. Joan Boykoff Baron
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Box 2219
Hartford, CT 06145

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Exploring the MapleCopter

Notes to the Teacher

Prior Preparations

Each student will need 1-3 maple seeds. The best time to collect ample seeds is during the spring, but they can also be collected during the fall.

How to Administer the Assessment

Part I should be done individually. The purpose of this part is to help students access the relevant prior knowledge that they acquired during the course of their physics studies. Make sure that each student receives at least 1-3 maple seeds with undamaged wings. Give students enough time for observations and reflection. The criteria used for scoring, found in Directions to the Students, should be given to the students *before* they start their work.

Part II is done in groups. Cooperation and effective communication should be encouraged during this phase. Students should be informed that the group will be graded as a group and this score will be shared by all members of the group. Please attempt to provide students with any equipment they find relevant to their investigation. Instructions for building the paper "helicopter" should be given if the group tried and failed to build its own model and has run out of ideas.

An oral presentation of the investigation, results and conclusions, by the different groups, should be an integral part of this assessment. This presentation, which takes place between Parts II and III (after the groups finish writing their summary reports), gives the teacher an opportunity to probe students' understanding and help them reconcile different findings and interpretations. In order to motivate all students in a group to be able to tell the whole story, the order of the presenters within a group should be determined by the teacher at the time of their presentation. Students should be given the scoring criteria for Oral Communication (Dimension IV) before they begin their presentations.

Part III is done individually in class. Students are required to synthesize and apply the knowledge they acquired during their group investigation. Students are asked to reflect on the validity of experimental procedures that were completed by another group. The scoring criteria are presented as part of the task.

Administration Procedures

To help you organize the assessment, we suggest the following administration procedures:

First Meeting - explain the nature of the assessment, distribute the "Directions to the Students" and the "Getting Started by Yourself" task, provide maple seeds and let students work individually on the task. At the end of the period collect all of the students' individual work. Do not give out the directions for group work.

Second Meeting - organize the students into small groups (3-4 students in each group). Groups should preferably be gender and ability mixed. Give students Part II of the task (Group Work) and the scoring guides for Collaboration and Oral Presentation, and allow at least two class periods for the group activity. Building models might be part of the students' homework. At the end of the activity, every group should write and submit only one report, although all the students should keep a record of the activities. Each student should also complete the Collaboration Scoring Guide (Dimension III) and share his/her self-ratings with the others in the group before submitting them to you.

Third Meeting (fourth class period) - every group should present its work, including experiments, results and conclusions before the whole class. Graphical aids should be encouraged. (Students can also be asked to rate each other's presentations using the Oral Communications Scoring Guide.)

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Exploring the MapleCopter

Notes to the Teacher
(continued)

How to Administer the Task (continued)

Last Meeting - distribute the "Finishing by Yourself" task. This should be done in class. Do not allow any interactions among students during this part. Collect all students' work at the end of the period.

Guidance

No guidance should be given to students in the design and implementation of their investigation. The instructions below for building the paper "helicopter" should be provided if a group tried and failed to build its own model and has run out of ideas.

Expected Outcomes

The MapleCopter task can be performed on different levels of complexity. High school students are not expected to come up with a set of multi-variable equations, or a complete accurate explanation of the physics that is involved in the spinning motion of the seed. Rather, they should be encouraged to use the physics that they have learned before, together with the data they they have gathered during their experiments, to create a tentative, scientifically sound explanation. The scoring of these efforts is described below.

Scoring

The teacher should score:

Dimension I Individual Understanding--based on Parts I and III

Dimension II Group Experimentation--based on Part II

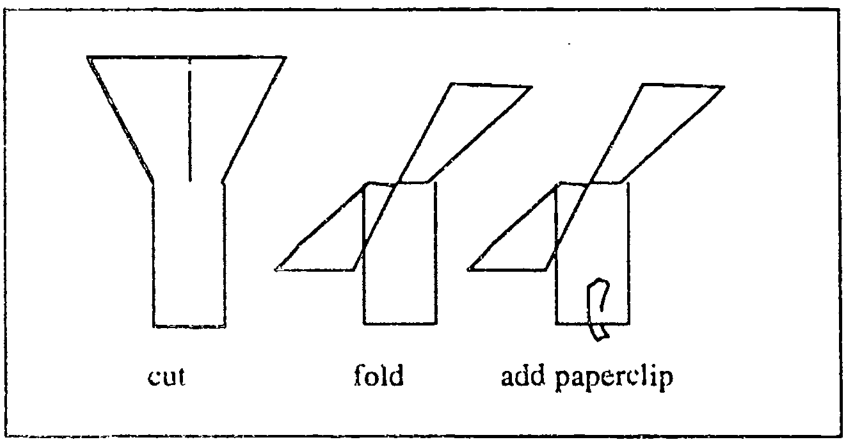
Dimension IV Oral Communication--based on the oral presentations in Part II

The students should rate themselves on:

Dimension III based on Part II following the directions on the back of the rating form

Dimension IV-- If the teacher wishes, the students may also be asked to score each other during the oral presentations using the Teacher/Student Scoring Guide.

Directions for Model Paper Helicopters



The directions above should be given to students only if they are unsuccessful in their efforts to build a working model.

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Exploring The MapleCopter

Directions to the Students

In this activity you are going to investigate a natural phenomenon - the spinning motion of a falling maple seed. Your performance on this activity, alone, and as a member of a group, will be assessed by your teacher, based on your written materials and your group's oral presentation. Therefore make sure that everything that you do is well documented. Keep a careful record of your experimental plans; all the data that you gather, analyze and display (computation, graphing, etc.), and your final conclusions.

Your work will be scored on the basis of its quality on the following four dimensions:

Part I - Getting Starting by Yourself : *Individual Understanding (Dimension I)*

1. Number and relevance of observations.

Part II - Group Work: *Group Experimentation (Dimension II)*

2. Number and relevance of factors that might affect the speed's motion.
3. Appropriate experimental design, using models.
4. Appropriate and accurate performance of experiments.
5. Appropriate gathering, analyzing and reporting of experimental data.
6. Conclusions that are supported by the data.

Part III - Finishing by Yourself: *Individual Understanding (Dimension I)*

7. Complete, accurate and clear explanation of the maple seed's motion, based on knowledge of physics and experimental results.
8. Elaboration on the usefulness of simplified models in scientific investigation.
9. Ability to critique a sample research report and draw valid conclusions from it.

In addition, at the end of Part II, every group member will be asked to complete the attached *Collaboration Scoring Guide* which contains criteria for Dimension III. The attached *Oral Communication Scoring Guide* contains criteria for oral presentations and will be used by you and your teacher during the group presentations to assess Dimension IV.

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Exploring The MapleCopter

Part I: Getting Started by Yourself

Throw a winged maple seed up in the air or drop it from your hand. Watch it "float" down to the floor. Describe as many aspects of the motion and physical properties of the seed that are relevant to the motion as you can. You may add a diagram if you wish.

1. Record all the observations that you have made. Do not attempt to explain the seed's motion at this time.

2. After you have finished recording your observations, try to provide an initial explanation of the spinning motion of the seed.

Exploring The MapleCopter

Part II: Group Work

1. Discuss the motion of the winged maple seed with the members of your group. Write a description of the motion, using the observations and ideas of the entire group. (You may add diagrams if you wish.)

2. Write down all of the factors that your group thinks might affect the motion of the winged maple seed.

3. Choose two factors from your list and design controlled experiments to test the effect of these factors. Discuss these experiments with your team. Have you been able to design a complete controlled experiment with the maple seeds?

4. Sometimes, experimenting with simplified models (or simulations) might help one to understand more complex phenomenon, such as the motion of the winged maple seed. Use a model, rather than the original seed, to carry out your experiments.

   a. Construct a model of the winged maple seed. If your model does not work, ask the teacher for model building instructions.
   b. Throw or drop the model and observe its motion.
   c. Design and carry out experiments to test the effect of different variables on the motion of the model.

5. Summarize your group's findings in a final report which includes:

   a. What your group tried to investigate (dependent and independent variables).
   b. How your group performed its experiments (method).
   c. What your group found (raw data, organized in charts or graphs, as necessary).
   d. What your group concluded (based only on experimental findings) and how valid your group thinks these conclusions are.

6. Prepare an oral presentation of your group's experiments, findings, and conclusions. Include graphical materials to aid your presentation. Each member of your group should be ready to participate in any part of the presentation.

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Exploring The MapleCopter

Part III: Finishing by Yourself

1. Suppose you want to explain the motion of the winged maple seed to a friend who has not yet studied high school physics. Write an explanation that is clear enough to enable your friend to understand the factors and forces which are involved in the motion of the winged maple seed. Support your explanation with findings from your experiment. Specify the aspects about which you are more certain and those about which you are still unsure.

2. In this activity, you used simplified models to help explain a more complicated phenomenon. Describe several advantages and disadvantages of using a model in the study of the motion of the winged maple seed. Include specific examples from the work of your group.

The following report was written by one group of students working on the MapleCopter task. Read the report and answer the questions that follow.

Group Report

We tested paper helicopters to see if different lengths (3), stiffness (1), and weights (3) will affect the helicopter.

We used:

1) 3 cm wing length, stiff (4 paper clips)
2) 6 cm wing length, stiff (4 paper clips)
3) 10 cm wing length, stiff (4 paper clips)
4) 6 cm wings flexible (4 paper clips)
5) 1/2 way cut through 10 cm wings, stiff (4 paper clips)
6) 3/4 way cut through 10 cm wings, stiff (4 paper clips)
7) 3 paper clips on 10 cm wings, stiff (3 paper clips)
8) 5 paper clips on 10 cm wings, stiff (5 paper clips)

Paper Model	Time
1) 3 cm, s	0.49 sec.
2) 6 cm, s	0.66 sec.
3) 10 cm, s	1.29 sec.
4) flexible, 6 cm	0.77 sec.
5) 1/2 cut, s, 10 cm	1.07 sec.
6) 3/4 cut, s, 10 cm	0.97 sec.
7) 3 pc, s, 10 cm	1.15 sec.
8) 5 pc, s, 10 cm	1.21 sec.

Our data confirmed our beliefs that wing length, flexibility, weight, and solidness would affect the helicopter. The results turned out as expected.

3. A scientific report is written to share information and to enable others to replicate the same experiment. Does this report give you enough information to replicate (repeat) the experiment? If not, what is missing or not completely described in the report? Please be specific in your critique.

4. The group forgot to make specific conclusions about their study. Based on their data, can you come up with conclusions about any of the variables that were studied by this group? If so, what are your conclusions, what are the data that support them and how valid are these conclusions? Please be specific in your answer.

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TEACHER'S SCORING GUIDE

Exploring The MapleCopter — **Dimension I — Individual Understanding**

Name________________________ Date ______________

Part I: Getting Started by Yourself

Directions: For each category, please circle all that apply.	Excellent	Good	Fair	Poor
I.1. Observations	☐ 6 or more	☐ 4-5	☐ 2-3	☐ 1 or 0
1. Two phases: free fall & spinning 2. Velocity of free fall phase is different 3. Tilted with seed lower 4. Rigid edge of the wing is leading edge 5. Spins around axis in seed 6. Spins either side facing up 7. Spins either clockwise or counterclockwise 8. Motion different with different starting positions Others:				

Part III: Finishing by Yourself

I.2 Explanation of the motion	☐ Excell	☐ Good	☐ Fair	☐ Poor
Holistic judgment based on the following: 1. Reference to or consistency with conclusions from experiments 2. Inclusion of the forces and factors studied 3. Explanation of physics concepts that is clear and appropriate to specified audience 4. Lack of misconceptions				
I.3 Explanation of use of models	☐ All 4	☐ 3	☐ 2	☐ 0-1
Explanation should be based on the following criteria: Advantages: 1. Materials are cheaper or more readily available/ nondestruction of originals 2. Easier to control and manipulate variables/ uniformity of models Disadvantages: 1. Parameters of model are not the same as the "maplecopter" (i.e. shape, materials, etc.) 2. Uncertainty about the generalizability of results from model to original.				
I.4 Analysis of research information	☐ All 5	☐ 4	☐ 3	☐ 0-2
The following deficiencies of the group report should be included: 1. No definition of dependent variable 2. No description of experimental method 3. Poor description of independent variables 4. No description of model used 5. Poor organization of data				
1.5 Analysis of research conclusions	☐ All 4	☐ 2-3	☐ 1	☐ 0
Tentative conclusions can be made about the effects of the following: 1. a. Length of wing b. Added mass c. Stiffness of wing 2. Conclusions are tentative due to uncertainty about accuracy of measurements				

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TEACHER'S SCORING GUIDE

Exploring The MapleCopter — **Dimension II — Group Experimentation**

Name ______________________ Date ______________________

Part II: Group Work

Directions: For each category, please circle all that apply.	Excellent	Good	Fair	Poor
II.1. *Identification of relevant factors.*	☐ 6 or more	☐ 4-5	☐ 2 - 3	☐ 1 or 0
1. Total mass of seed and wing 2. Distribution of mass between seed & wing 3. Surface area of wing 4. Curvature of wing 5. Air (currents, pressure, humidity) 6. Moisture level of seed & wing 7. Initial dropping position 8. Gravity Others:				
II.2 *Experimental design.*	☐ 4	☐ 3	☐ 2	☐ 1
The experimental design should: 1. Match the factor to be studied 2. Define independent and dependent variables 3. Control and test variables separately 4. Be clearly described				
II.3 *Performance of experiments.*		☐ Yes		☐ No
Yes - Indication that students have either attempted to control variables or have considered how this might have affected their results. No - No indication of the above				
II.4 *Data Collection and organization*	☐ All 6	☐ 4 - 5	☐ 2 - 3	☐ 1 or 0
Students' work should be reasonable and appropriate on the following criteria: *Quality of Measurements* 1. Accuracy of data 2. Repetition of experiment (until data are replicated) *Manipulation and Presentation of Data* 3. Clarity and organization (e.g. proper labels, units, scaling, etc.) 4. Appropriate symbolic representation (e.g. use of bar graphs vs. Cartesian Coordinate graphs.) *Use of Mathematics:* 5. Making calculations (e.g. taking averages) 6. Correct use of formulas, defined new terms (e.g. velocity, forces, surface area)				
II.5 *Conclusions*		☐ Yes		☐ No
Yes - Conclusions are consistent with and supported by the data collected No - Conclusions are not consistent with or supported by the data collected				

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STUDENT SCORING GUIDE INSTRUCTIONS

Exploring the MapleCopter **Dimension III: Collaboration**

Write your name and today's date at the top of side 2 and for each question, fill in the appropriate box to describe your behavior in the group during this task. Please note that items 3, 7, and 15 are different from the others; when you rate these items, be aware that you are pointing out a problem.

After you have completed your self-ratings, circulate them to each person in your group for his or her review and signature. If any member of your group disagrees with your ratings of yourself, please discuss with that person the reasons for the disagreement and then decide whether or not you want to change your original rating.

Signature of Other Group Members

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________

When each member of your group has approved and signed your rating sheet, please submit this form to your teacher or follow any alternate directions your teacher may have provided.

If you cannot agree on a rating or if you wish to make comments about this process, please use the space below.

This space may be used for COMMENTS

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Name ______________________________ Date ______________

Plesae see the reverse side for directions.

Check One

A. GROUP PARTICIPATION	Almost Always	Often	Some-times	Rarely
1. Participated in group discussion without prompting.				
2. Did his or her fair share of the work.				
3. Tried to dominate the group - interrupted others, spoke too much				
4. *Participated in the Group's Activities.*				
B. STAYING ON THE TOPIC	**Almost Always**	**Often**	**Some-times**	**Rarely**
5. Paid attention, listened to what was being said and done.				
6. Made comments aimed at getting the group back to the topic.				
7. Got off the topic or changed the subject.				
8. *Stayed on the Topic.*				
C. OFFERING USEFUL IDEAS	**Almost Always**	**Often**	**Some-times**	**Rarely**
9. Gave ideas and suggestions that helped the group.				
10. Offered helpful criticism and comments.				
11. Influenced the group's decisions and plans.				
12. *Offered Useful Ideas.*				
D. CONSIDERATION	**Almost Always**	**Often**	**Some-times**	**Rarely**
13. Made positive, encouraging remarks about group members and their ideas.				
14. Gave recognition and credit to others for their ideas.				
15. Made inconsiderate or hostile comments about a group member.				
16. *Was Considerate of Others.*				
E. INVOLVING OTHERS	**Almost Always**	**Often**	**Some-times**	**Rarely**
17. Got others involved by asking questions, requesting input or challenging others.				
18. Tried to get the group working together to reach group agreements.				
19. Seriously considered the ideas of others.				
20. *Involved Others.*				
F. COMMUNICATING	**Almost Always**	**Often**	**Some-times**	**Rarely**
21. Spoke clearly. Was easy to hear and understand.				
22. Expressed ideas clearly and effectively.				
23. *Communicated Clearly.*				

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TEACHER'S/STUDENT'S SCORING GUIDE

Exploring The MapleCopter **Dimension IV — Oral Communication**

Name ______________________ **Date** ______________________

Directions: For each category, please circle all that apply.	Excellent	Good	Fair	Poor
IV.1 Message (content)	☐ All 5	☐ 3-4	☐ 2	☐ 1 or 0
The speaker: 1. Organizes presentation effectively. 2. Reports and explains clearly. 3. Fits his/her presentation into the presentations of the other group members. 4. Provides thorough and clear answers to questions. 5. Uses scientific terminology accurately and appropriately.				
IV.2 Medium (style)	☐ All 4	☐ 3	☐ 2	☐ 1 or 0
The speaker: 6. Uses a voice clear and loud enough for all to hear. 7. Maintains eye contact with the audience. 8. Uses a conversational tone rather than reading to audience. 9. Uses visual aids that are easily seen and understood. 10. Avoids distracting behaviors.				

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A Performance "Engineering" Task
Middle or High School Level

Glynn Meggison
Fox Lane High School
Bedford, New York

For more information about A Performance "Engineering" Task, contact:

Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

A Performance "Engineering" Task
Middle or High School Level

Design the largest possible closed container from a given amount of stiff colored paper:

- Determine the amount of paper used for each container.

- Determine how large capacity of container will be when completed.

- Construct the actual container.

- Keep a log of your progress (or lack of it).

- Justify your answers in a report, detailing your activities and sources.

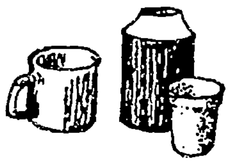
All sources, including friends, parents, teachers, books, journals, etc. must be acknowledged in the report. All formulas used must be clearly stated and their source acknowledged.

Insulation
8th Grade Science Task

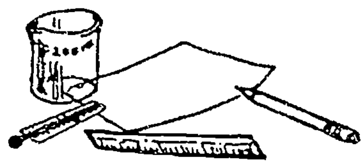
Excerpted from Badger, E., Thomas, B., and McCormack, E. (1990). *Beyond Paper & Pencil*. Quincy, MA: Massachusetts Educational Assessment Program, Massachusetts Department of Education.

For more information about Insulation, contact:
Elizabeth Badger
Massachusetts Department of Education
1385 Hancock Street
Quincy, MA 02169

BEYOND Paper & Pencil



Insulation

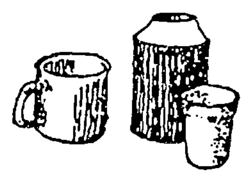


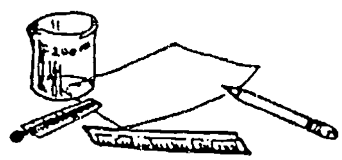
Description

Students were asked to evaluate the insulating capacity of three hot drink cups and to come to a decision based on their findings. They were provided with the materials necessary to carry out and record such an investigation. The role of the administrators was limited to observing students' procedures although, at the conclusion of the experiment, they discussed the students' decisions with them.

Materials:

- an insulated plastic cup
- a plastic mug
- a styrofoam cup
- 3 thermometers
- rulers
- 1 large container filled with hot water
- a stopwatch
- plain paper
- 250 ml beakers
- a graduated cylinder





Introduction

Although laboratory activities may form part of the most eighth graders' science instruction, there is little chance for experimentation. The purpose of most laboratory work is to confirm results or to provide experiences for concepts introduced previously. Seldom do students have a chance to plan and carry out a real experiment that has no clear "right" answer.

Insulation gave them this chance. It set forth an interesting question in a practical context. No special materials or laboratory equipment were involved. There was nothing to signal that this was a science test. Yet, both scientific concepts and procedures were evaluated as students investigated the relative heat loss of different hot drink containers.

Massachusetts Educational Assessment Program

Massachusetts Department of Education January 1990

In the spring of 1989 over 2000 pairs of fourth and eighth grade students were assessed on their ability to apply mathematical and scientific concepts. This series of reports describes and discusses the results of these assessments. Prepared by Elizabeth Badger, Brenda Thomas, and Elizabeth McCormack.

Basically, students were asked to compare the relationship between time and loss of heat for each of the three cups. In order to do this they had to identify the variables—what was to be manipulated (the independent variable), what was to be kept the same (the controlled variable) and what was to be compared (the dependent variable). They also had to consider the degree of standardization needed in order to get reliable results for the three cups.

Reads thermometer before putting into cups (both at 30 degrees)

Starts timer—adds more water after 50 seconds

Checks temperature after 1 minute. Insulated cup temperature is higner.

The Controlled Variable: Quantity of Water

Seventy percent of students controlled for the quantity of water by measuring the same amount for each container. Another 7 percent appeared to recognize the need for identical quantities but used the level of the water in each container as the measurement, without accounting for the fact that each container had a different shape and, consequently, would hold different amounts of water at the same level. The rest (23 percent) did not seem to understand that the quantity of water would affect results.

In the example below, the students use a ruler to measure the amount of water in each cup. This casts doubt on their understanding of heat loss, as well as their understanding of volume and conservation. Did they notice that the cups differed in circumference? Do they realize that this difference would affect the quantity of water at different levels? If so, did they realize that a large quantity of water will retain heat much longer than a smaller quantity? Without these basic conceptual understandings, the experimental procedures themselves are meaningless.

Pours water into each cup—no measuring

Thermometers into cups

Sets timer for 1 minute

Checks temperature in each cup after 1 minute

Starts another temperature check. Puts more water in each cup after 40 seconds

Stop again (1 minute)—plastic cup worst

Styrofoam and insulated the same—checks these two. Measures amount of water in each using ruler.

The Independent Variable: Time Elapsed

Although 67 percent of students used the same elapsed time for each of the three cups, the length chosen appeared to be arbitrary. Students did not seem to recognize that the problem was posed in a practical context, implying such considerations as: "For how long would I want the coffee to stay warm?" Had they considered such a question, they might have timed the temperature loss for more than the one or two minutes that many students appeared to believe would suffice. Only 27 percent of the students took the temperature over a time period of 4 minutes or longer.

Given the nature of the material used in the cups, this is of particular concern. It appears that the rate of heat loss for the individual cups varied over time. Whereas the insulated cup showed a drop in initial temperature as heat was absorbed by the material, it retained heat longer than the others. Only slightly more than a quarter of the students waited long enough to be able to record the different rates of heat loss for the various cups.

The students described below are more typical.

They placed the thermometer in the styrofoam cup and filled it. Took temperature—42 degrees, then started timer. After 1 minute it went to 41 degrees.

Then they did the plastic cup using the same thermometer. Poured water in, set the timer, waited a second for thermometer to adjust, took a reading at

40 degrees. After 1 minute it stayed at 40 degrees.

Did the same with the insulated cup, but it showed a reading of 41 degrees initially. After 1 minute the reading was the same.

They decided that two cups were good insulators.

The Dependent Variable: Heat Loss

Establishing the initial temperature. Because water coming from different levels in the source container could have different temperatures even if all the cups were filled at the same time, it could not be taken for granted that the initial water temperature was identical in each. Consequently, in order to establish the relative heat loss of the three cups, an initial baseline had to be established for each. Many students did not recognize this. Although 46 percent took the temperature of the water immediately after pouring it into the cups, another 42 percent took it only after some time had passed. These students merely assumed that the initial water temperature would be identical in all cups.

Charting the heat loss. Thirty-five percent of the students took only one temperature reading and 4 percent made their decisions on the basis of no readings at all. Some merely felt the outside of the cups. At the other extreme, 20 percent of the students took five or more readings in order to chart the relative heat loss of the various cups.

The students described below took no initial temperature, making their decision on the basis of a single reading. Although they used the timer, the length that they waited (20 seconds) was unrelated to the practical considerations presented in the problem. According to the administrator, they were concerned about the water cooling in the bucket, but this did not affect their decision to fill and measure each cup separately.

Measured 100 ml of water starting with styrofoam cup (felt outside of cup). Timed for 20 seconds. 45 degrees.

Measured 100 ml into plastic mug. Checked temperature after 20 seconds and felt outside of cup 43 degrees.

Repeated procedure with insulated cup—47 degrees.

Decided insulated cup.

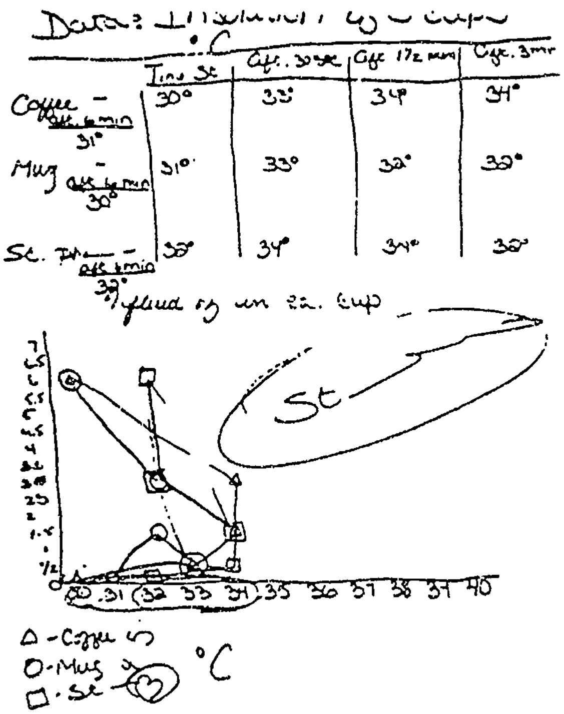
Administrator's comment: They showed concern that the water was cooling in the bucket while test was going on. They also had great concern for how hot the cups felt with hot water inside. They said that the water in the styrofoam and plastic cups were losing heat to the cups and that did not happen in the insulated cup.

Recording of Data

The basic "stuff" of an experiment is the data collected. In order to observe a relationship it is necessary to collect and record the changes that occur when one variable is related to another. Although approximately half the students recorded some data, this consisted mainly of the final results only. Few saw the necessity of keeping track of interim data. As a result, few noted the different rate of heat loss in the different cups. The charts below illustrate the work of some students who did keep a record of their results.

Begining	1:30	3:00	4:30	6:00	7:30	9:00
blue 58°C	48°C	43°C	42°C	41°C	40°C	40°C
blue + white 58°C	44°C	42°C	41°C	41°C	40°C	40°C
white 58°C	46°C	46°C	45°C	44°C	44°C	43°C

Conclusion – The white styrophoic cup retained heat the longest. It lost only 3°. The blue + white mug lost 4° + came in second. The blue mug lost 8° + is the loser. For environmental reasons, the safest cup to buy. The blue + white cup. The most econimical buy would be the blue cup or the blue + white cup



Assumed temperature same in each. Allowed 2.5 minutes

Checked thermometers to make sure they were the same. Wanted to get all same (but one was touching thermometer near bulb, saying that they should be careful not to touch the bulb)

Insulated cup = 40
Styrofoam = 42
Plastic mug = 38

Administrator's note: No comment on the fact that temperature went up instead of down.

Although students who were taking algebra (our only measure of general school performance) tended to perform better than others, this was not necessarily the case. For example, the following pair of students were academically advanced but showed little understanding of the requirements of an experiment.

Poured some water into each beaker, put thermometers in, watched thermometers rise.

Poured water out of insulated cup. When I asked "Why?," they said, "Because it was too low (temperature) already."

Kept watching the remaining two cups and thermometers.

Poured more water into both cups, read both thermometers and said it was definitely the styrofoam cup.

The administrator commented: I don't know how they threw the insulated cup out so fast. They took temperatures of different cups at random. They guessed as to degree readings, rounded off to nearest temperature. The number of readings per cup varied. They did no recording of data. Amount of water was different in each cup. Although enthusiastic and engaged throughout, there was little apparent concern for accuracy.

Laboratory Procedures

In addition to recognizing the need for keeping the time and quantity variables constant, students had to establish a set of procedures that were precise and standardized for all the cups. Their difficulties in doing this stemmed, in part, from a lack of experience with using the instruments. For example, many did not realize that the temperature shown on the thermometer had to stabilize before an accurate reading could be made. Others did not realize that constantly taking the thermometer in and out of the water affected the accuracy of the reading.

Most students hurried through their work, intent only at arriving at a solution. The students described below are typical of many who did not seem to understand the need for precise measurement and careful recording. Not only did they assume that all the cups would have the same temperature, but they did not appear to identify that *rising* temperature was an anomaly that suggested an error in their procedure.

Measured out 150 ml, poured into insulated cup

Measured out 150 ml, poured into styrofoam. Put thermometer into insulated cup—temp = 38

Factors Associated with Success

Those who did well on the task:

- showed confidence
- remained engaged throughout until completion
- were careful about checking results
- were enthusiastic
- had done something like this before

Approximately 29 percent of the students said that they had participated in an experiment like this before. This experience did effect the performance of many. For example, the following pairs of students accomplished the task with efficiency. In both cases, the administrators noted that the students had previous experience with this kind of experiment. They noted that the students were confident and enthusiastic and were careful in checking results.

Example 1:

They filled beakers to 150 ml, placed thermometers in cups, make chart and then simultaneously poured the water into each container. Took first reading at 43 degrees once stabilized. Took another reading within seconds but did not refer to the stop watch. Continued to take readings. I discovered that Heather was taking 30 second reading. (Position of stop watch prevented my seeing this part of their work.) Continued to take readings at 30 second intervals for 5 minutes. Insulated cup held heat longest. chart made.

Example 2:

Thermometer in each cup—paper set up as data table.

150 ml of water in each beaker were transferred to cups, stopwatch for 30 seconds as initial reading. Read again at 1 minute, 2 minutes.

Partner admonishes selected student to keep thermometer in water. Added 3-minute and 4-minute readings.

Decided they should repeat to verify results (as per their teacher).

Insulated cup best, styrofoam next, mug worst

Second trial- insulated and styrofoam tied. Mug still worst.

On the other hand, many of those who were not successful appeared to enjoy the task. One administrator quotes a student as saying, "I liked this. It was fun to be chosen. I usually get left out." The administrator goes on to comment: "They had never been given a problem to figure out without being told what to do before. They have done experiments in science but not like this. They continued to discuss which cup they would buy as I write this."

Another wrote:

> These boys *loved* what they were doing!! At the end, they said they wished they could always take tests this way. When I asked them why, the selected student said, "Because it's more interesting and you actually learn stuff while you are being tested. It's more fun when it's not so important that you get one special answer."
>
> *The administrator goes on to comment:* "...strange, since selected student didn't conclude anything but what his initial guess was..even though he did waver slightly in the face of the data."

On the other hand, not all were so enthusiastic. Administrators rated approximately 30 percent of the students as neutral about the activity. Approximately the same percentage were seen to be uncertain about how to go about the problem. Although we did not look at the correlation between the two, anecdotal evidence suggests that the open-ended nature of the task exacerbated any anxiety that students may have felt when faced with an unfamiliar type of problems. In general, fewer students showed enthusiasm for Insulation than they did toward

Cubes and Circuits, both of which were more structured. An administrator's note about one pair of students further confirms this conjecture.

> "Students seemed afraid to use equipment, had no idea how to set up the experiment and wanted to be done as quickly as possible. Students really did not want to touch any equipment."

- a lack of recognition that the purpose of the task was to record and interpret a relationship, not just produce an answer.

- a lack of understanding of the role of data in any investigation.

- some misconceptions about the transfer of heat and the conservation of volume.

Summary of Results

Few students had a clear idea of what the task involved. Many took the instruction to "find out the cup that holds the heat the best" at face value and started to pour and measure without much consideration of the factors that might affect their results. Perhaps they did not even recognize the task as a "scientific experiment" for which certain procedures applied. In any case, few took the time to organize a plan or to identify the dependent and independent variables. It is doubtful that they even recognized their relevance.

Many students appeared to be concerned only with producing an answer. They did not recognize that *how* they went about the task was relevant or affected the validity of their answer. Administrators noted that only 35 percent of the students appeared to be concerned with accurate procedures, carefully checking their results. Although about half the students made some record of the results, there was very little attempt to use the data. Few made any attempts to examining it for patterns or anomalies, such as the different rates of heat loss of the various cups. In other words, the *process* of experimentation was of little concern to most students. Perhaps they did not see how a scientific approach could be applied to anything as prosaic as evaluating the efficiency of hot drink cups.

Students exhibited a variety of problems on this task. Briefly, they were:

- little clarification of the problem, planning of the experiment, or evaluation of the results.

- some inability to recognize the requirements of the problem, i.e., that it called for experimental controls and standardized procedures.

- little apparent understanding of the different types of variables involved.

Extension for Classroom Instruction

This is a change from the usual laboratory situation in which procedures are followed in order to produce the "right" result. **Insulation** asks students to investigate a real situation that is of some potential interest to them. Since we have no data on how these students would have performed in a more "text-book" type of experiment, we cannot compare. However, it does seem evident that, even if they are capable of using a scientific approach in their science classes, they do not recognize its applicability in other contexts. Although these students may have performed more "scientifically" in a situation that was clearly labelled as such, basic approaches to investigation should not be limited to the laboratory.

Educators contend that students perform poorly in science because science instruction is overloaded with terminology and factual knowledge to the exclusion of the practice of science. The usual response to such charges is a demand for more laboratory work. However, following text-book procedures to establish known outcomes (the most common form of lab work) is not really practicing science either. When students have been observed and questioned on what they are doing and why, they often show little understanding of the factors involved. Their main concern is getting the "right" answer (which, in many cases, they already know). Although they may be learning laboratory techniques, they are not necessarily learning to practice science. To practice science well requires a willingness to analyze problems, as well as the ability to follow certain procedures.

In addition, a scientific approach can be the subject for instruction—not in the abstract, as a bit of factual knowledge, but through activities. For example, the steps in text-book lab experiments can be cut out, scrambled, and given to students to order. Can they reconstruct the original order? What is the rationale? Could the experiment be done another way? This may lead to discussion and more thoughtful consideration of certain procedure. The knowledge gained may generalize beyond the class when students better understand the reasons for why their experiments are structured the way they are.

Other booklets in this series offer specific suggestions for investigations that can be used as the starting points for experiments. For example, **Popcorn Estimation** provides a series of group investigations involving weighing and measuring. **Circuits** list some tasks involving electricity. Beyond this, there are commercially produced books that give investigative, in contrast to confirmatory, experiments related to the concepts involved in **Insulation**.[1]

Such investigations, particularly when they are carried out by different small groups, can provide vehicles for practice in scientific thinking. Students can create their own questions, observe and record interesting phenomenon, make hypotheses and test them. The advantage of group work, aside from the obvious requirement that students must communicate with each other within the group, is that groups may vary in their results and interpretations. If such differences occur, they provide the opportunity for groups to defend their methods and justify their conclusions before discriminating peers. In such cases, not only do students begin to act like scientists, but they learn the necessity of recording accurately and communicating clearly. They also learn that their work has to be defensible, that a "right" answer is not necessarily right.

Adaptation for Evaluation

In discussing the aims of schools science, Rosalyn Yalow, a Nobel Laureate for her work in physics, stated:

> Science is not simply a collection of facts; it is a discipline of thinking about rational solutions to problems after establishing the basic facts derived from observations. It is hypothesizing from what is known to what might be, and attempting to test the hypotheses. This is the scientific process, and it can be broadly applied.[2]

In evaluating students' ability to apply the scientific process to problems, the correct answer is far less important than how students go about the task. Students' approach to the task also gives insight into their understanding of the concepts involved. For example, in **Insulation** it was evident from their actions that most students had little appreciation of the role of controlling variables in the experiment.

Those who have attempted to classify the kinds of behavior that should be assessed in science have suggested four distinct categories.

Planning:
- raising and clarifying problems
- designing investigations

Performing
- observing
- manipulating
- data gathering

Interpreting
- data handling
- making inferences and evaluations
- predicting and explaining

Communicating
- reporting
- justifying results

The evaluation checklist on the next page generally follows this format. It is similar to that used in the state-wide administration of the test. It primarily concerns the experimental process, how well students adapt what they know of the scientific approach to an actual problem. However, it also addresses how well students understand the problem itself and the concepts involved. In order to explore this, we asked the performance test administrators to discuss the task with the students after they had reached

1 See Schools Council. **Change: Stage 3.** Milwaukee, WI: Macdonald-Raintree. 1973.

2 "Industry and Science in the Early Grades." The Wingspread Journal, vol. 10, 2, 1988.

Checklist for Student Evaluation

Planning:

- asks for clarification when appropriate ___
- willing to evaluate different approaches ___
- identified dependent/independent variables ___

Execution:

- methodical approach ___
- attempts to verify results ___

variable 1: water

- controls for quantity ___
- measures level of water ___

variable 2: temperature

- baseline established for each cup ___
- number of thermometer readings ___

variable 3: time

- establishes initial reading for each cup ___
- duration between initial and final readings ___

gathering of data

- records all readings ___

use of equipment

- waits for thermometer to stabilize ___
- reads thermometer correctly ___
- measures liquid precisely ___

Interpretation:

- recognizes trends ___
- notes anomalies ___
- accounts for outcomes ___

Communication:

- gives clear description of outcome ___
- reports systematically ___
- displays appropriately ___

Attitude:

- willing to cooperate ___
- listens to others' ideas and responds ___
- confident about task ___
- confident about use of equipment ___
- remains engaged ___

their conclusions. We also asked administrators to keep any written records that students had made. These various sources of information complement each other and increased our understanding of student achievement.

Although the evaluation of students' performance ability requires actives experimentation, other aspects of the ability to engage in science can be measured in other ways.

For example:

raw data from an experiment can be presented and students can be asked to reduce, find patterns and make inferences (Interpreting);

the steps of an experiment can be outlined and students can be asked to describe the initial problem, including the important variables (Planning);

an experiment can be described and students can be asked for a critique of the methods used and/or the conclusions derived (Planning/Interpretation).

The most important requirement is that evaluation tasks allow latitude for different methods, ideas and solutions and that they challenge students in ways that have some meaning to their lives.

designed by

Graphitopia

This pamphlet reports on the results of the 1989 testing carried out by the Massachusetts Educational Assessment Program. Other pamphlets in this series: "Animal/Leafkey," "Background Summary," "Circuits," "Cubes," "Math Town," "Playground," and "Popcorn Estimation."

Mathematics/Science Curriculum and Exhibition 9th and 10th Grade

Central Park East Secondary School
New York City Public Schools
New York, New York

For more information about the Mathematics/Science Curriculum and Exhibition, contact:
Deborah Meier
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1573 Madison Avenue
New York, NY 10029

Mathematics /Science Curriculum and Exhibition
9th and 10th Grade

This year in Math/Science we will be studying Forces, Motion and Conservation of Energy

Where are we going?

In our first semester we will study the forces involved in buoyancy, free fall and motion in general. Questions such as "What makes things float?" and "What makes the 'Free Fall' such an exciting ride at an amusement park?!" will guide our work this term.

Consideration of the above questions leads to investigation of the concepts of mass, volume, density, gravity, acceleration and velocity.

We will also be focusing on measurement and scaling as we study the above topics. When we "read" an instrument that tells us the mass of an object, or it's volume, how do we know if we are reading it correctly, and in the right units? What do the little lines on the scale mean?!

Our scientific journey will lead to a number of mathematical studies: area vs. volume, linear vs. non-linear equtions (and their graphs), probability, trignometry, and the pythagorean theorem. We will also concentrate on further strengthening student competencies in basic arithmetic skills.

How will we get there?

Our major theme for this year will be "The Amusement Park" and all the things that go on there. The designers of an amusement park use virtually every principle of motion to make the scariest rides possible - <u>safely.</u> In fact we (Division II) will be visiting Great Adventure at the end of the year as a Math/Science trip!

At school, students will be applying the principles of motion in order to analyze and design their own amusement park rides. Along the way they will be conducting experiments in order to answer their own questions about forces and motion. Our general approach will be one of "seek and find" through hand on activities and classroom discussions.

How will we know if we've arrived?

Exhibitions will consist of student designs for several different types of rides. Since we begin with the concept of buoyancy, our first exhibition ride will be The Water Ride, and students will need to answer the question "What makes things float?". Included in the requirements of this exhibition will be: a scale diagram of the ride, a list of materials needed to build it, number of people it holds and even the cost to make the ride. Students will need to explain the scientific and mathematical reasons why their ride floats.

Sincerely,
Ed, Jennifer, Jo, Rebecca, Eileen and Dave

Exhibition 1
Water Rides

Focus Question:
What makes things float?

Introduction:
For this exhibition, you will be designing a water ride for your new amusement park. You are on a tight budget, so it is important not to spend more than necessary for the materials you will need.

The engineer in charge of the project (your boss) has given you the job of designing the device where people will float. It can be anything from a one person inner tube to a boat that holds many people. Even though your device may run on a track under water, it must be able to float with passengers aboard in order to pass safety inspections.

For this exhibition, you will need to do the following:

1. Write a description of your ride. What does it look like? How many people can ride at a time? How long does it take? How much will you charge each person? What emotions do you expect people to have when they ride your ride and why? Include a sketch of your ride.
(Due on ________)

2. Make a scale diagram of one of the "boats" or "flotation devices". You must have both a top view and a side view. Show where the people will sit/stand/lie down. What is the maximum number of people that will fit?
(Due on ________)

3. Calculate the volume of material necessary to build the device.
(Due on ________)

4. Using the density chart you made earlier, calculate what the mass of the device would be for at least three different materials. For each type of material answer the following questions. Show and explain ALL calculations!!! Provide evidence to support your answers!
   a. Will it float?
   b. Will it float holding the maximum number of people? (Even if they are all football players?)
(Due on ________)

5. How much will it cost to make your boat from each of the materials you analyzed in part 4? What is the least expensive material that is safe to use? Calculate how much you will have to order for all of the boats your ride requires and how much it will cost.
(Due on ________)

6. What if you used salt water instead of fresh water? Would this affect your results? In what way? Explain how your calculations in part 4 would be different.
(Due on ________)

7. In reality, there are many other types of safety tests to be done before determining which material is safest to use. Name two other things that you feel would be important to test before sending innocent children on your ride. Suggest ways to carry out these tests.
(Due on ________)

8. To sum up all of your work, write a memo to your boss explaining your designs. Explain the entire process you went through so that she knows your work is thorough. (You really want a raise!!). Include all your calculations, data, results, and conclusions and explain them so she understands them. (The raise is very important to you!!).
(Due on ________)

Evaluation of your exhibition will include the following:

ORGANIZATION OF WORK	UNDERSTANDING OF CONCEPTS	PROCESS SKILLS
A. Speaks to the essential question	A. Probes ideas deeply	A. Works neatly
B. Appropriate choice of experiment	B. Connects ideas	B. Competent use of materials
C. Uses diagrams clearly when necessary	C. Cites appropriate evidence	C. Attention to detail
D. Meets deadlines, fulfills responsibility	D. Explains observations	
	E. Conjectures (What if...)	

Mathematics and Science Performance Tasks 5th and 6th Grade

Assessment Performance Unit
Great Britain

For more information about the Mathematics and Science Performance Tasks, contact:

Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

Mathematics and Science Performance Tasks
5th and 6th Grade

1. Estimating Physical Quantities

In this question you will not be allowed to use any measuring instruments. You will have to make as good a guess as you can.

Cut off a length of tape 50 cm. long. Put it in the envelope to one side.

Take a plastic bag. Put 100 grams of dried beans in it. Seal the bag.

Take the other plastic bag. Put 100 grams of oatmeal flakes in it. Seal the bag.

Take the beaker. Put 100 cubic cm. of water into it from the tap.

Draw a line 11 cm. long in the space provided. You may use the straight edge provided to help.

Scoring system reports results within 10%, 20%, 30% of correct value, and a statement as to whether the students tended to overvalue or undervalue.

2. Solving an experimental question

When you hang a load on a spring and let it go it bobs up and down. The load bobs up and down on some springs faster than on others. You have been given a collection of different springs. This is what you have to find out:

> What makes the difference to how quickly a load bobs up and down on a spring? Is it the length of a spring? Or the diameter?

You can use any of the things in front of you (springs, timer, ruler, weights). Make a clear record of your results so that someone else can understand what you have found out.

Learning by Doing
Hands-On Science Tests
3rd and 7th Grade and
High School Level

National Assessment of Educational Progress

For more information about Learning by Doing, contact:

Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

Learning by Doing
Hands-On Science Test
3rd & 7th Grade

Which type of sugar - granulated or cubed - dissolves faster in warm water? Does stirring make a difference?

Equipment required:

glass beakers	sugar cubes in packet	packages of granulated sugar; same mass of sugar as in one cube
paper towels	a measuring cup	hot water in thermos (60C)
two stirrers	a timer	a graduated beaker
a graduated cylinder	a small ruler	paper and pencil

a. Briefly describe what you did to compare how fast the two kinds of sugar dissolved.

b. Fill in the blank spaces below to show what you found

i. When the water was stirred, the __________ dissolved faster.

ii. When the water was not stirred, the _________ dissolved faster.

c. Write your explanation of these results.

Scoring:

Score 3 points if student notes that amount of water and rate of stirring needs to be controlled.

Score 2 points if student only notes one of the variables.

Score 1 point if student simply described procedure used or what was observed.

Learning by Doing
Hands-On Science Test
High School Level

Survival

"Imagine that you are about to take a trip on which you could be stranded on a mountainside in cold, dry, windy weather. You can choose to take one of two of the fabrics in front of you to help keep you warm. What you will need to find out, using the equipment in front of you is: Which fabric will keep you warmer?

"Let me give you a few suggestions about how you can find out which material will keep you warmer:
- use a tin can to represent a person
- put hot water in the tin can to make the can more life-like
- make the can a cover from the fabric
- use the fan to make an imitation wind

Equipment:

aluminum cans
sheets of bubble plastic
graduated cylinders
beaker of water
electric kettle
a stopwatch
scissors
a thermometer
sheets of blanket
graph paper
a small ruler
electric fan
rubber bands
transparent tape

Scoring:

4 points for correct answer with detailed notes

3 points for correct answer with inadequate notes

2 points for incorrect answer with notes

1 point for an incorrect answer without notes

0 points for no response

Social Studies Humanities and Fine Arts

Oral History Project
High School Level

Albin Moser
Hope High School
Providence, Rhode Island

For more information about the Oral History Project, contact:
Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

Oral History Project
High School Level

"...You must complete an oral history based on interviews and written sources, and present your findings on tape as well as orally in class. The choice of subject matter will be up to you... Create 3 workable hypotheses based on your preliminary investigations, and four questions you will ask to test out each hypothesis.

Criteria for Evaluation of Oral History Project

Three hypotheses investigated.
Describe at least one change over time.
The 4 people selected for the interviews are appropriate sources.
At least 4 questions prepared in advance, related to each hypothesis.
Questions are not leading or biased.
Follow-up questions asked where possible, based on answers.
Note important differences between 'fact' and 'opinion' in answers.
Use evidence to prove the ultimate best hypothesis.
Organization in your writing and presentation to class.
Audio-tape of project...

On the American Revolution
High School Level

Grant Wiggins
Center on Learning, Assessment, and School Structure

For more information about On the American Revolution, contact:
Grant Wiggins
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39 Main Street
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US History Performance Task: On the American Revolution

A. Neglected Facts or Harmful Bias? (US History performance task)

Imagine that you are a prosecutor or a defense attorney in a trial brought by a parent group. They seek to forbid purchase by the high school of a US history textbook, excerpted below. (The book would be used as a supplement to the current text, not in place of it). You will present a 5-minute oral case, in pairs, to a jury, taking either side of the question "Is the book appropriate for school adoption and required reading?" You will be assessed on how well you support your claim about the historical accounts in the text: are the accounts biased, inaccurate or merely different from our usual viewpoint?

On the American Revolution[1]

As a result of the ceaseless struggle of the colonial people for their political rights, the 13 colonies practiced bourgeois representative government by setting up their own local legislatures. As electoral rights were restricted in many ways in every colony, those elected to the colonial legislatures were mostly landlords, gentry, and agents of the bourgeoisie, without any representation whatsoever from the working people. There were struggles between the Governors and the legislatures. These struggles reflected the contradictions between the colonies and their suzerain state....

The British administration of the colonies was completely in the interests of the bourgeoisie in Britain.... The British colonial rule impeded development of the national economy in North America. It forced certain businesses into bankruptcy. As a consequence, contradictions became increasingly acute between the ruling clique in Britain and the rising bourgeoisie and broad masses of the people in the colonies....

Heretofore [Prior to the Boston Massacre], the struggle of the colonial people had been scattered and regional. In the course of the struggle, however, they summed up their experience and came to feel it necessary to stand together for united action. Thus in November 1772, a town meeting held in Boston adopted a proposal made by Samuel Adams to create a Committee of Correspondence to exchange information with other areas, act in unison, and propogate revolutionary ideas.... In less than 2 months, a Committee of Correspondence was formed by more than 80 cities and towns in Massachusetts, and later became the organs of revolutionary power...

The Declaration of Independence was a declaration of the bourgeois revolution. The political principles enunicated in it were aimed at protecting the system of capitalist exploitation, legitimizing the interests of the bourgeoisie. In practice, the "people" referred to in the Declaration only meant the bourgeoisie, and the "right of the pursuit of happiness" was deduced from the "right of property" and intended to stamp the mark of legitimacy on the system of bourgeois exploitation. The Declaration

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[1] from *The American Revolution: Selections from Secondary School History Books of Other Nations,* HEW Publication OE 76-19124 U.S. Government Printing Office (1976).

was signed by 56 persons, of whom 28 were bourgeois lawyers, 13 were big merchants, 8 were plantation slaveowners and 7 were members of the free professions, but there was not one representative of the working people."

During the time of the war, America began its westward expansion on a large scale. From the first, the colonies had been founded on the corpses of the Indians.... In 1779 George Washington sent John Sullivan with a force of soldiers to 'annihilate' the Iroquois tribe settled in northern New York. In his instructions he wrote: "The present aim is to completely smash and flatten their settlement, take as many prisoners as possible, the more the better, whether they are men or women... You must not only mop up their settlement but destroy it." Thus at the time of its founding, America had already nakedly exposed its aggressive character....

During the war patriotic women also played a big role. While men went to the front, they took over the tasks of production. They tilled fields and wove cloth, and sent food, garments, and other articles to the front. When Washington was in a precarious situation retreating into Pennsylvania with his army, the women of Philadelphia raised a huge fund to procure winter clothes for the revolutionary army. This event deeply moved the fighters. Under fire on the battlefields, women risked their lives to bring ammunition, transmit intelligence, and rescue the wounded. Some even served as artillery gunners....

After the outbreak of the war, America not only failed to organize the enslaved Negroes but guarded them even more closely, thus intensifying their oppression. This seriously impeded their participation in the war and was one reason why the war for Independence was slow in achieving victory....

Questions to consider in your research and presentation:

1. What is the likely country of origin for this textbook? From what clues do you infer this? Explain your reasoning.

2. Whether or not your hunch in #1 is correct, what can be said to be the most likely political influences on the author's point of view? What evidence is there of that influence? How does it affect the author's choice of language? Does the language reflect bias or an acceptable (but different) point of view?

3. Why does it make sense, given the political perspective taken in the text, that the author pays particular attention to a) the Committee of Correspondence, b) the contribution of women, and c) the plight of Indians and Negoes? Are the facts accurate? Do they warrant that much attention in your view, or are they over-emphasized to support a bias?

4. You will be judged on the accuracy, thoroughness, documentation, and lack of bias in <u>your</u> case. Be fair but be an effective speaker! See the scoring rubric [6-point scoring scale for each dimension to be assessed].

The Complexities of Reconstruction
High School Level

Dennie Palmer Wolf
Project Zero
Harvard Graduate School of Education

For more information about The Complexities of Reconstruction, contact:

Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454
or
Dennie Palmer Wolf
Project Zero
Harvard Graduate School of Education
13 Appian Way
Cambridge, MA 02138

History Task: The Complexities of Reconstruction
High School Level

Task Background:

Following a unit on the Civil War and Reconstruction, a US history teacher provided his class with a facsimile collection of letters written by recently-freed slaves and various people who had control over Reconstruction. The teacher asked students to study the letters, make notes on them, and to design a museum exhibition that would center on those letters. The aim would be to provide visitors with an understanding on the complexity of the post-Civil War south.

Requirements:

1. Turn in working notes/commentaries on the letters. What did they notice?
2. Write a paragraph on the chief idea to be put across in the exhibit.
3. Provide cards with titles and explanations for each item in the exhibition.
4. Make suggestions with and/or provide photocopies of other artifacts for the exhibit.

Criteria included:

1. ability to break out of stereotypes
2. ability to work from original documents
3. the development of a historical idea
4. embedded accuracy: comments on the facts cited or implied

Hamlet Exhibition
9th and 10th Grade

Central Park East Secondary School
New York City Public Schools
New York, New York

For more information about the Hamlet Exhibition, contact:

Pat Walter or Deborah Meier
Central Park East Secondary School
1573 Madison Avenue
New York, NY 10029

Hamlet Exhibition
9th and 10th Grade

Part One: Choose A, B, or C

A. Choose a character to illustrate through drawing. Illustrate a scene from each act where your character is doing something significant to the play or revealing his own personality. Copy several speeches from each act showing the evidence in the play of the scene that you illustrated.

B. Choose a scene from the play and act it out in Shakespearean language and then re-write the scene in modern day language and act that out. Try to memorize your lines.

C. Re-write the story/an act in modern day language. Hand in the written story and also hand in a list of speeches from the play that parallel your story that you used as evidence to create your version.

Part Two:

Memorize a speech from the play of at least eight lines. We will say our speeches out loud.

Part Three:

We will have an in class essay on the play. You will be able to use your notes and books while writing the essay, but the actual writing will be done in class. We will discuss themes from the play for you to prepare.

Kentucky Writing Assessment

Kentucky Department of Education

For more information about the Kentucky Writing Assessment, contact:
Tish Wilson
Kentucky Department of Education
1900 Capital Plaza Tower
500 Mero Street
Frankfurt, KY 40601

CONTENTS

Table of Contents

Best Piece

Letter to reviewer written by the student explaining why she/he selected the best piece and how the piece was developed

One short story, poem, play, or personal narrative

A personal response to a cultural event, public exhibit, sports event, media presentation, or to a book, current issue, math problem, or scientific phenomenon

Two prose pieces from content areas other than English/Language Arts, the purpose of which will be to

a. predict an outcome
b. defend a position
c. analyze or evaluate a situation
or
d. solve a problem

The prose pieces should be written for two different purposes.

KIRIS WRITING ASSESSMENT GUIDE

Holistic Score

[illegible]

- Establishes and maintains clear focus: evidence of distinctive voice
- Careful but subtle organization
- Rich, interesting and/or pertinent details
- Effective variety in sentence structure and length
- Effective and/or rich language
- Control of surface features

[illegible]

- Focused on a purpose; some evidence of voice
- Predictable organization
- Elaborated and appropriate details
- Predictable patterns in sentence structure
- Acceptable, appropriate language
- Few errors in surface features relative to length or complexity

[illegible]

- Some attempt to establish and maintain purpose and to communicate with the audience
- Some lapses in unity and coherence
- Unelaborated or repetitious details
- Simplistic sentence structure
- Simplistic language
- Some errors in surface features that do not interfere with communication

[illegible]

- Poor awareness of audience and purpose
- Random and/or weak organization
- Limited and/or inappropriate details
- Incorrect and/or ineffective sentence structure
- Inappropriate wording
- Errors in surface features are disproportionate to length and complexity

[illegible]

- Little or no awareness of audience and/or purpose
- Little or no organization, thought patterns difficult, if not impossible, to follow
- Few or no details
- Errors in sentence construction interfere with communication
- Incorrect and/or ineffective wording
- Errors in surface features interfere with communication

Analytic Criteria

[illegible]

The degree to which the writer

- establishes and maintains a purpose
- communicates with the audience

[illegible]

The degree to which the writer demonstrates

- unity
- coherence

[illegible]

The degree to which the writer includes details that develop the main point(s)

[illegible]

The degree to which the writer includes sentences that are

- varied in structure and length
- constructed effectively
- complete and correct

[illegible]

The degree to which the writer exhibits correct and effective

- vocabulary
- word choice

[illegible]

The degree to which the writer demonstrates technically correct

- spelling
- punctuation
- capitalization
- usage

Revision of Analytic Assessment Guide Codes to match Portfolio Score Form Codes: 3-24-92

KENTUCKY WRITING ASSESSMENT
Holistic Scoring Guide

1	2	3	4	5
• Little or no awareness of audience and/or purpose • Little or no organization; thought patterns difficult, if not impossible, to follow • Few or no details • Errors in sentence construction interfere with communication • Incorrect and/or ineffective wording • Errors in surface features interfere with communication	• Poor awareness of audience and purpose • Random and/or weak organization • Limited and/or inappropriate details • Incorrect and/or ineffective sentence structure • Inappropriate wording • Errors in surface features are disproportionate to length and complexity	• Some attempt to establish and maintain purpose and to communicate with the audience • Some lapses in unity and coherence • Unelaborated or repetitious details • Simplistic sentence structure • Simplistic language • Some errors in surface features that do not interfere with communication	• Focused on a purpose; some evidence of voice • Predictable organization • Elaborated and appropriate details • Predictable patterns in sentence structure • Acceptable, appropriate language • Few errors in surface features relative to length or complexity	• Establishes and maintains clear focus; evidence of distinctive voice • Careful but subtle organization • Rich, interesting, and/or pertinent details • Effective variety in sentence structure and length • Effective and/or rich language • Control of surface features

Analytic Annotation Guide

		COMMENDATIONS	NEEDS
IDEA DEVELOPMENT	The degree to which the writer • establishes and maintains a purpose • communicates with the audience	IDX voice IDY original and/or insightful	IDX greater sense of purpose IDY greater investment by author
ORGANIZATION	The degree to which the writer demonstrates • unity • coherence	OX evidence of planning OY order/sequence easily followed	OX more evidence of planning OY clearer focus/stronger unity
SUPPORT	The degree to which the writer includes details that develop the main point(s)	SX appropriate details SY rich, interesting details	SX more appropriate details SY more elaboration of details
SENTENCES	The degree to which the writer includes sentences that are • varied in structure and length • constructed effectively • complete and correct	SNX variety in structure and length SNY complete and correct sentences	SNX greater variety in structure and length SNY more complete and correct sentences
WORDING	The degree to which the writer exhibits correct and effective • vocabulary • word choice	WX successful use of vivid, rich language WY effective and varied vocabulary	WX closer attention to appropriate word choice WY more varied vocabulary
MECHANICS	The degree to which the writer demonstrates technically correct • spelling • capitalization • punctuation • usage	MX spelling enhances readability MY capitalization, punctuation, and usage aid clarity	MX appropriate spelling to aid reader MY greater control of punctuation, capitalization, and usage

KENTUCKY WRITING ASSESSMENT
Author's Self-Assessment/Conference Form

STUDENT: ______________________

______________________ Conference with Classmate Date

______________________ Conference with Teacher Date

ANALYTIC ANNOTATION GUIDE

Analytic Features	Overview	Criteria	Strengths +	Needs –	Comments About Writing Strengths and Needs
IDEA DEVELOPMENT	The degree to which the writer • establishes and maintains a purpose • communicates with the audience	1. Key ideas developed			
		2. Awareness of audience			
		3. Purpose established and maintained			
		4. Evidence of voice			
ORGANIZATION	The degree to which the writer demonstrates • unity • coherence	5. Opening and closing evident			
		6. Logical progression of ideas			
		7. Transitions evident			
		8. Fluent, cohesive			
SUPPORT	The degree to which the writer includes details that develop the main point(s)	9. Details develop main idea(s)			
		10. Appropriate details			
		11. Elaborated and varied details			
SENTENCES	The degree to which the writer includes sentences that are • varied in structure and length • constructed effectively • complete and correct	12. Variety in structure and length			
		13. Appropriate and effective construction			
		14. Correct sentence construction			
WORDING	The degree to which the writer exhibits correct and effective • vocabulary • word choice	15. Effective and precise language			
MECHANICS	The degree to which the writer demonstrates technically correct • spelling • punctuation • capitalization • usage	16. Few errors in spelling			
		17. Few errors in punctuation			
		18. Few errors in capitalization			
		19. Correct usage			

9th Grade Multi-Day Writing Assessment

Cherry Creek, Colorado

For more information about the 9th Grade Multi-Day Writing Assessment, contact:

Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

9th Grade Multi-Day Writing Assessment

-part of a twice-yearly district wide K-12 writing assessment.

Days 1 - 4: Pre-writing class lessons and activities:

- watching an excerpt from "Stand and Deliver"
- reading and discussing a poem and an essay on teachers
- bringing in pictures of themselves as elementary school students
- field trip to local elementary school

Day 5: Writing in class

Select one of your past learning experiences which you remember well. Write an autobiographical essay in which you: 1) narrate the circumstances (where? when? why? how?); 2) describe the 'teacher' and his/her significance as well as your own reactions at the time; and, 3) interpret your present feelings about it. Why do you remember? What does it mean to you now? Be sure to use specific details, imcluding conversation. This writing sample will be completed in class today On day 10 your final copy must be handed in.

Day 6 - 9: Revision , editing, and final copy produced.

- Papers scored by district language arts teachers.
- Writing scored on 4 equally-weighted dimensions, using a 4-point scale: Content, Organization, Language Usage, Mechanics.

Evaluation, Reflection, and Assessment of Drama/Theatre

Kansas State Board of Education

For more information about the Evaluation, Reflection, and Assessment of Drama/Theatre, contact:

Ray Linder
Kansas State Board of Education
120 S.E. 10th Avenue
Topeka, KS 66612-1182

Evaluation, Reflection, and Assessment of Drama/Theatre

In its publication "Kansas Schools for the 21st Century," the Kansas State Board of Education recommends a new directional shift to "strengthen educational quality and accountability through performance-based curricula and evaluation systems" (1989). By focusing on learner-centered instructional approaches, students become responsible for their own learning, while teachers become responsible for leading students to discover and apply their individual knowledge and skills.

The impact of the drama/theatre program on individual growth is based on how the student perceives the drama process, what the student produces, and how the student reflects on drama/theatre experiences. As both creators and audience members, students discover their creative potential, develop critical thinking skills, and evaluate the effectiveness of their own physical, vocal, mental, emotional, social, and moral behaviors and that of others, using selected criteria based on the art form of drama/theatre. Students also reflect on the content of implicit connections between drama/theatre and life in order to transfer their knowledge and skills about human behavior to their daily lives and to form aesthetic judgments. Because drama/theatre is an interactive and collaborative process among human beings, students also develop interpersonal skills with their peers based on cooperative learning models.

Within this unique learning environment, teachers develop special interpersonal relationships with students as individuals and as integral members of dynamic groups. The role of the teacher/director is to lead students to discover and evaluate their creative minds, bodies, voices, and feelings, and to reflect on how drama/theatre experiences pertain to their daily lives within and outside the school context. Rather than comparing them against one another, teachers measure students against their own potential as creators and audience members, recording where they start and how far they progress before, during, and after drama/theatre experiences.

TEACHER/DIRECTOR LEADS & EVALUATES	DURING PROCESS: DRAMA/REHEARSAL	AFTER PRODUCT: DRAMA/THEATRE PRODUCTION
STUDENTS EVALUATE FORM AND EFFECTIVENESS OF CHOICES	Self as Actor Other Actors as Audience Member	Self as Actor Dramatic Elements as Audience Member
STUDENTS REFLECT ON CONTENT AND RELATIONS TO LIFE	Self as Character Characters as Audience Member	Self as Character Dramatic Elements as Audience Member

Student Evaluation of a Theatre Production

The teacher's role in preparing students to attend and evaluate a theatre performance varies depending on the particular student group and the play they are about to see. Regardless of their age, students usually need some kind of preparation before attending a theatre production. However, this preparation varies according to the kind or amount of previous audience experience of the students and the complexity of the specific play they are going to see. Some teachers want their students to know the play's synopsis, characters, the historical background, or in some instances, the poetic nature of the language of the play. Other teachers feel that having students too informed diminishes the suspense of the plot unfolding and lessens their spontaneous responses. It is important that the teacher have some idea about the appropriateness of the play in terms of action, language, themes, and length.

After attending the play, students can describe, analyze, and evaluate the theatre experience in several ways. Younger students can demonstrate comprehension and understanding of a play by retelling the major actions of the play, by drawing pictures of favorite moments from the play or making a series of drawings with captions. They can write letters to the actors telling what they liked and why they liked it. They can enact scenes from the play to reveal their comprehension of the characters and plot of the play.

Older students can evaluate the production by identifying the theme and how it was revealed through dialogue and action. They can discuss how effectively the suspense and tension built to a climax and how it was resolved. They can discuss or write an essay about what made seeing the production an enjoyable, significant, or memorable experience for them.

Secondary students can write critiques which require them to substantiate their opinions about the performance with valid reasons and examples. They can evaluate the design elements of spectacle in terms of how they enhance the dramatic elements of plot, character and theme. Students can compare a live theatre performance with one seen on television or film. Reading and analyzing a script before seeing a performance can provide another basis for comparison and evaluation of artistic choices.

Students of all ages can be involved in oral discussion of various aspects of the theatre experience. For all students evaluation of drama/theatre develops the ability to think critically and helps them to gain confidence in their aesthetic judgment.

Student Reflection after a Drama/Theatre Experience

After a drama/theatre experience, students, not in roles, make connections between life and what they have experienced as creators and audience members. The teacher's reflection questions can help the group move from a concrete experience in drama/theatre to an understanding of the abstract ideas it represents. The teacher can lead the students from an understanding of a specific event to a more universal meaning by helping them to consider parallel situations across time and cultures. Such discussions can move students from an egocentric view of life to one that unites them with the rest of humanity, those who have come before and those who will come after. For example:

> After enacting scenes from the life of Martin Luther King, Jr. for an assembly program, students can be asked to reflect on others, such as Mohandas Gandhi or Susan B. Anthony, who have struggled for justice. Students learn that throughout time, there are those who have stood up for their beliefs and whose actions have led to consequences for self and for society at large. This kind of reflection on the larger themes of life growing out of the drama can lead students to consider what drives people to risk so much for what they believe is right.
>
> After attending the play Macbeth, students might reflect on men and women of the past and present, those in politics, the military or business, who have been driven by overwhelming ambition and lust for power. Reflection provides the opportunity to discuss the nature of power and whether power by its very nature corrupts.

Drama/theatre provides students with concrete experiences of high emotional impact which form a basis for later reflection on universal values and meanings. Teacher/directors need to lead students to make these metaphoric connections about society and life, so that drama/theatre experiences go beyond "fun and entertainment."

USING MULTIPLE ASSESSMENT METHODS

Because drama/theatre is a collaborative, interactive, audio-visual art form which involves individual personal skills and acting behaviors, students should be assessed in multiple ways using a wide variety of strategies and methods. Multiple assessment methods allow teachers to assess students' progress and achievement more in tune with theatre's unique characteristics. Because drama/theatre is also a composite of other art forms, assessment methods used in visual art, music, dance, and creative writing may also be employed. Students may use a variety of teachers' same methods to create ongoing "portfolios" to evaluate and reflect on their own work over the school year.

Elementary Students	Secondary Students (add)
Observation	Self-Inventory
Class discussion	Oral research reports
Individual interview	Written research reports
Role playing	Outside observation
Criteria checklists	Theatre production assignments
Audio/videotape recordings	Auditions
Problem-solving projects	Rehearsal notes
Oral critique	Audience response
Written critique	Notebooks
Oral test	Journals
Written test	Adjudications from festivals

Performance Methods

The assessment of performance in drama/theatre involves careful, informed judgments by the teacher/director and other students who support one another constructively in a positive atmosphere built on mutual understanding and trust. Subjective assessments become more valid when well-designed criteria are used consistently for each student in building positive self-concepts. Care must be taken by the teacher to select criteria in relation to the focus of each activity. Students must know in advance what criteria they are being evaluated on for each drama/theatre experience. Checklists are most useful when the teacher adds personal, detailed explanations as suggestions for alternative choices and improvement.

Oral Methods

Asking students to verbalize their understanding of drama/theatre experiences in discussions or individual interviews taps their linguistic ability to evaluate themselves and others and to form judgments about drama/theatre. When students create dialogue or interpret memorized dialogue as characters, they exhibit their intrapersonal and interpersonal abilities to understand human behavior from another person's perspective. When students plan and enact scenes, they show their ability to cooperate with others in problem-solving and social situations

QUESTIONS TO ASK ELEMENTARY STUDENTS
AFTER ATTENDING A THEATRE PRODUCTION
(Adapt for each grade level)

Plot

What happened in the play in the beginning, middle, and end?
What was the conflict or problem in the play?
How did the characters solve the problem(s)?
What was the most exciting moment in the play? Why? (climax)

Characters

Who was the protagonist(s)? ("good" characters)
Who was the antagonist(s)? ("bad" characters)
What did each character want to do? (superobjective)
Why did each character want to do that? (motivation)
How did each character look? (appearance)
How did each character behave and move? (body)
How did each character speak? (voice)
What emotions did each character express at different times in the play?

Theme

What were the main ideas or "lessons" in the play?
Do any of the characters remind you of anyone you know?
If so, who and why?
Do any of the situations in the play remind you of things that have happened in your life?
If so, what and why?
Did you learn anything from the play or did you already know it?
What did you learn from the play? How did you learn it?

Actors

Who did you think was the best actor and why?

Spectacle

Where did the action of the play take place? (setting)
When did the action of the play take place? (time)
How did the scenery, costumes, props, lights, sound, and makeup express the main idea(s) in the play?

Mood and Dynamics

What was the mood or feeling of the play?
How did you feel at different moments in the play?
What made you feel that way?

If you could put on this play with your friends, what things would you change and why?

(Jeanne Klein, University of Kansas Theatre for Young People)

STUDENT WORKSHEETS FOR ACTING

[Leave enough space between questions for answers using 2 pages]

GIVEN CIRCUMSTANCES

1. Who am I?

2. What time is it?

3. Where am I?

4. What surrounds me?

5. What are the given circumstances?

6. What are my relationships?

7. What do I want?

8. What's in my way?

9. What do I do to get what I want?

(Jeanne Averill, Lawrence HS)

Cross-Disciplinary Research

5th Grade "Exit-Level" Research and Presentation Project

Mark Twain Elementary School
Littleton, Colorado

For more information about the 5th Grade "Exit-Level" Research and Presentation Project, contact:
Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

5th-Grade 'Exit-level' Research and Presentation Project

Preparation: 2 days prior to the day of the assessment, each fifth grader will be instructed to formulate three questions that he or she would like to research. The students will be given overnight to think about the questions, and to word them so that they are clear and open to investigation. The teacher will review the questions to assure that they meet the aforementioned criteria, and coach any student whose questions are not yet fully formed or adequate for research.

The Task: On the days of the assessment the teacher will select one of the three questions for the student to research. The student will use the two days to do the following:

- Research the question using and documenting different sources and types of information;

- Prepare a written report that is word processed;

- Create a visual presentation that is relevant to the question;

- Deliver a three to five minute oral presentation.

Performance Assessment: The students' work will be assessed in 4 categories: 'research strategies', 'written report', 'visual presentation' and 'oral presentation'. A 5-point rating scale will be used for each category. Overall scores of 17-20 would be considered superior, 13-16 commendable, etc. Assessors will be comprised of teachers, individuals with background in assessment, and lay people from the community.

Hodgson Vocational-Technical High School

Newark, Delaware

For more information about the Hodgson Vocational-Technical High School, contact:

Steven Godowsky
Hodgson Vocational-Technical High School
2575 Summit Bridge Road
Newark, DE 19702

Hodgson Vocational-Technical High School

VISION:

Graduates of Hodgson will feel confident in their abilities to wrestle with difficult material, to make connections between their work and their society, and to impart their knowledge to other people. The Senior Project provides students with the opportunity to gain an in depth knowledge of an aspect of their vocational or technical career major that both interests and challenges them. They develop confidence and learn that they have the resources to be self-disciplined, productive citizens.

EXHIBITION:

Every Hodgson senior chooses a topic from his/her career major for his/her senior project and devotes a significant part of the senior year to completing it. The three requirements of the senior project illustrate how academic and vocational learning are integrated:

1. The product. In their major shop class, students design and construct a product related to their vocational major. The product constitutes a portion of the student's final exam in their shop.

2. The research paper. In their senior English technical writing class, students learn how to write a research paper and then produce one that is related to the product they are constructing.

3. The public oral presentation. Before a committee that includes teachers and members of the community, students display their product and make a formal oral presentation that synthesizes the knowledge and skills gained from their research and construction of their product. This committee, known as the project committee, evaluates the public presentation which constitutes the final exam for English.

SETTING:

At the start of the senior year, students select advisors and choose the topics on which they will work. Then, they establish their project committee -- their English teachers, vocational instructors, and any other relevant community members. Throughout the process, members of the committee coach students and serve as resources. Ultimately, it is this committee that evaluates the final presentation.

Students follow a timeline with several checkpoints built into it for drafts of papers and presentations. While much of the work needs to be done outside of class, significant time will be devoted in both English and shop classes for students to work on the components of their projects.

SAMPLES:

The following is a narrated sample from a draft of the school's Senior Project guide book:

Ken has been a student in Mill/Cabinet for three years. During that period he has developed an interest in the Pennsylvania Dutch (Penn Germans), a People famous for furniture making. Ken believes that the Senior Project is a tremendous opportunity to learn more about the Penn German's furniture making.

Ken discusses his ideas with his vocational, history, and English teachers, and they are all in agreement. Ken asks his vocational teacher to serve as his advisor for the project, and his teacher accepts.

After completing and submitting all the required documentation, he begins his research, using his English and Social Studies skills to aid his work. since the research paper is the backbone of his project, Ken has been wise to rely on his teachers for help and advice.

By this time, Ken has (through consultations with his advisor) formally written and requested the participation of his senior project committee. It consists of his project advisor, and his math and English teachers.

The next major portion of his project is the construction of a faithful reproduction of a piece of Penn-German furniture. As part of his research Ken, with his advisor, visited the Pennsylvania Museum of Art: It was here that Ken found a particularly attractive piece of furniture to replicate, an 18th century Penn-German corner hutch. He designed and drew his plans according to measurements taken during this visit. While continuing to work on his research paper, Ken constructed his hutch over a period of sixty hours.

Knowing that his public presentation was the culminating activity of his project, Ken decided to dress as an 18th century Penn-German carpenter. In addition to explaining about the Penn-Germans and their furniture making, Ken also compared modern-day mill/cabinet techniques with those of the 18th century Penn-German carpenter.

His presentation went well. His committee asked difficult, thought-provoking, and relevant questions about his work. Ken was nervous, but performed admirably. In fact, his committee commended and thanked him for his thorough and dynamic presentation.

All that remained was his obligation to write thank you letters to all members of his committee and others who assisted in his project.

STANDARDS:

Students receive direct and immediate feedback after their presentations. Committees assess four categories, deeming student work excellent (E), good (G), satisfactory (S), or unacceptable (U) (see next page).

REFLECTIONS:

1990 was the first year of the Senior Project, and the response was predominantly positive. Faculty members felt good about the connections that were made between the vocational and the academic parts of the school. Also, students felt like they were involved in substantive and meaningful work.

The faculty spent a long time hammering out details and expectations, which turned out to add an unexpected level of morale and collegiality. At the same time, there are still many questions that need reflection, which can become time consuming.

At this point, the school is working toward creating clearer definitions of teacher roles. Just how should an advisor and a shop teacher interact? How much in-class time should be provided for work on the project? How can teachers who aren't experts in certain areas serve as valid and thoughtful judges?

Assessment Categories

	E	G	S	U
CONTENT total points: 30	28-30	25-27	20-23	0-19

-demonstrates thorough understanding of knowledge
-demonstrates creativity and originality
-exhibits a higher order of thinking
-uses proper procedures for demonstrations
-responds appropriately to questions

	E	G	S	U
ORGANIZATION AND WORK PLAN total points: 30	28-30	25-27	20-23	0-19

-follows guidelines
-uses introduction and closing
-shows evidence of preparation
-uses appropriate aids, equipment...
-stays within time limits

	E	G	S	U
COMMUNICATION SKILLS total points: 30	28-30	25-27	20-23	0-19

-communicates clearly
-uses proper posture, eye contact...
-uses proper grammar

	E	G	S	U
PERSONAL APPEARANCE total points: 10	9-10	8	7	0-6

TOTAL POINTS: ___________

130

Portfolios

Portfolios

Reprint Information

Portfolio Assessment: Sampling Student Work
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The Graduation Portfolio at Central Park East Secondary School
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Portfolio Assessment: Sampling Student Work

Wolf, D.P. (1989). "Portfolio Assessment: Sampling Student Work." *Educational Leadership 46*(7): 35-39.

For more information about Portfolio Assessment, contact:
Dennie Palmer Wolf
Project Zero
Harvard Graduate School of Education
13 Appian Way
Cambridge, MA 02138

Portfolio Assessment: Sampling Student Work

When students maintain portfolios of their work, they learn to assess their own progress as learners, and teachers gain new views of their accomplishments in teaching.

For the last two years, a consortium of administrators, teachers, and researchers in the Pittsburgh schools has been searching for alternatives to standardized assessment. In that work we have found that the world brims over with examples of the differences between testing as we know it in schools and the reflective self-evaluation that is inseparable from pursuing virtually any kind of worthwhile work.

Some examples? Last summer when the Dodgers were heating up, I heard a radio announcer tease pitcher Orel Hershiser about keeping a journal. Hershiser wasn't fazed. He simply said human memory is too faulty and he cares too much about what makes him crackerjack one day and just average the next not to keep track. Several days later, I visited a small gallery where they show artists' books and working drawings. Inside, the walls and cases were crammed with sketches by Ree Morton, a sculptor who began studying art in her thirties, surrounded by young children, drafting and writing on top of the washing machine. There on the gallery walls was evidence of another kind of evaluation. Morton would stalk an idea from inception to final work, making version after version after version. Then, two days ago I listened to Sonny Rollins reminiscing on a jazz show. He was remembering how, smack in the middle of gigs and tours, he decided to "step out to find a new sound." He left the world of clubs and concert halls to practice hours at a time where the acoustics would let him get inside the music—solo on the bridges of New York City.

Here is both promise and trouble. The promise lies in the demonstration of how demanding and thoughtful we can be about shaping work that matters to us. The trouble lies in recognizing how we ignore this capacity in schools. Never do we stop to ask how we could make our evaluative gatekeeping model the kind of self-observation and informed critique that separates ball tossers from fine pitchers, doodlers from artists, or instrumentalists from musicians. Yet virtually every student walks out of school into years of long-term projects: raising children, building a house, running a farm, writing a novel, or becoming a better lab technician. All of these projects require moment-to-moment monitoring, Monday morning quarterbacking, and countless judgments of errors and worth. Unfortunately, very little in the way we now structure assessment in schools names or encourages those lifelong skills.

A biography of a work reveals the geology of different moments that underlies the production of any major project.

Even in a time when increasing numbers of educators are working to diversify and humanize the way we evaluate student learning, much school-based assessment actually *prevents* students from becoming thoughtful respondents to, and judges of, their own work. The "surprise" nature of many test items, the emphasis on objective knowledge, the once-over and one-time nature of most exams—all offer students lessons that are destructive to their capacity to thoughtfully judge their own work (1) assessment comes from without, it is not a personal responsibility, (2) what matters is not the full range of your intuitions and knowledge but your performance on the slice of skills that appear on tests, (3) first-draft work is good enough, and (4) achievement matters to the exclusion of development

Alternatives from the Arts and Humanities

These issues about evaluating student learning have recently been aggravated by debates about what counts as knowledge and learning in the arts and humanities. On the one hand, critics like Bennett, Finn, Hirsch, and Ravitch argue that the first obligation of humanities education is to provide students with a considerable factual knowledge of Western history and culture. On the other hand, a coalition of projects and people argue that students cannot learn and retain facts unless they learn how to *think* about those facts. Therefore, from the earliest age, students must learn the processes characteristic of the humanities: how to question, investigate, think, and write. Certainly another of these processes is self-knowledge and reflection, what the artist Ben Shahn once referred to as the ability to be "the spontaneous imaginer and the inexorable critic all at once." But this capacity may be squeezed out of schooling if current critiques of education lead to a relentless push for coverage of facts.

Among these contending voices are the designers of the new Civilizations of the Americas course at Stanford University, the College Board's EQuality project, and the CHART (Collaborative for Humanities and Art) programs funded by the Rockefeller Foundation and designed to bring both critical and creative thinking to students normally disbarred from anything but functional education.

Included among the Rockefeller projects is PROPEL, the three-way consortium mentioned earlier. PROPEL brings together the Pittsburgh Public Schools, Educational Testing Service, and Project Zero at the Harvard Graduate School of Education in an effort to demonstrate that it is possible to assess the thinking processes characteristic of the arts and humanities in rigorous, but undistorted, ways. Central to this work are two aims. The first is to design ways of evaluating student learning that, while providing information to teachers and school systems, will also model personal responsibility in questioning and reflecting on one's own work. The second is to find ways of capturing growth over time so that students can become informed and thoughtful assessors of their own histories as learners.

To accomplish these aims, the teachers and researchers in PROPEL have asked experts—artists, musicians, and writers—how they sample and judge their own life work. Time and again, something like Orel Hershiser's diary, Ree Morton's stack of sketchbooks, or Rollins' sustained practicing surfaces. Whatever the medium, the

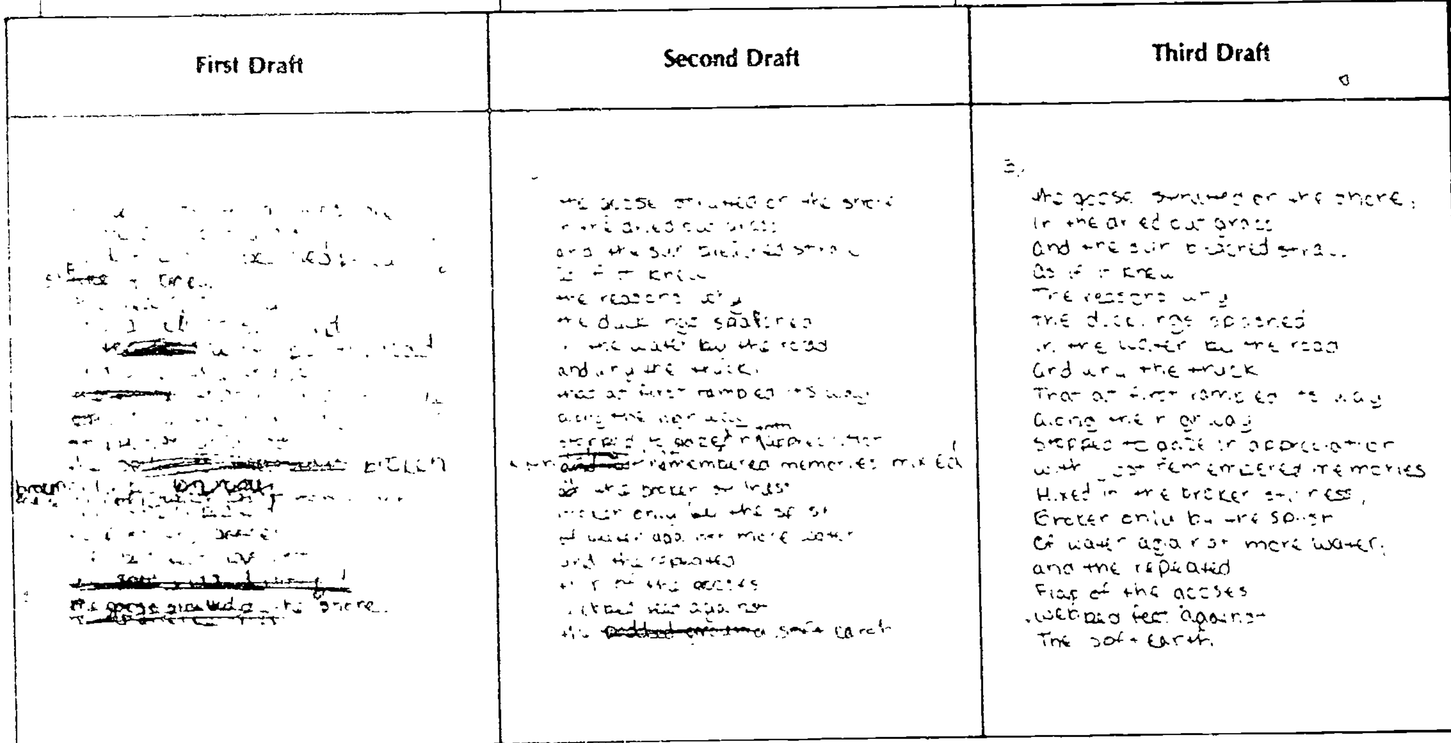

Fig. 1. Three Drafts of Student Poem

message is the same: thinkers and inventors often keep longitudinal collections of their ideas, drafts, and questions. They use these as a kind of storehouse of possibilities for later work, valuing them as a record of where they have been and reading them for a sharp sense of their own signatures and uncertainties. Building on these examples, PROPEL teachers and researchers have developed systems of portfolio assessment in the visual arts, music, and writing.

Portfolios

PROPEL portfolios have developed some distinguishing characteristics. To begin, students collect more than a diverse body of finished work. In fact, they gather what we have come to call *biographies of works*, a *range of works*, and *reflections*. A biography of a work reveals the geology of different moments that underlies the production of any major project. Among young musicians preparing for a concert, such a biography includes regular tape recordings of a particularly telling section of a piece. For a young writer it might include the notes, diagrams, drafts, and final version of a poem.

The range of works is deliberately diverse. A student artist might include collages, prints, photos or portraits, landscapes, and still lifes. The young writer might bring together pieces as diverse as journal entries, letters, poems, or essays from social studies classes.

Reflections are documents (or even audiotapes) that come from moments when teachers ask students to return to their collections of work, taking up the stance of an informed critic or autobiographer, noticing what is characteristic, what has changed with time, or what still remains to be done. At the end of any given semester or year, teachers offer students a still longer period of time to study their collections, selecting several works that best exemplify what has changed for the student in that time. These works, along with student and teacher commentaries, become a final portfolio that can be passed along as a continuing document from year to year.

PROPEL seeks to demonstrate that it is possible to assess the thinking processes characteristic of the arts and humanities in rigorous, but undistorted, ways.

Why Bother?

Portfolios are messy. They demand intimate and often frighteningly subjective talk with students. Portfolios are work. Teachers who ask students to read their own progress in the "footprints" of their works have to coax and bicker with individuals who are used to being assessed. Halfway through the semester, at least a half dozen recalcitrants will lose every paper or sketch or tape they have ever owned. More important, teachers have to struggle to read and make sense of whole works and patterns of growth. Hence, hard questions arise: "Why bother? What comes out of portfolio-based assessment?" The immediate answer lies in integrity and the validity of the information we gain about how and what students learn. But that's far from all.

Student responsibility. In the fall of last year, Kathy Howard faced an ordinary class of 8th graders who had not written more than the answers to chapter questions and who had certainly never been asked to reflect on their progress as writers. In the ensuing months she began to insist that they write essays, journals, and poems. At intervals of several months, she asked her students to select two pieces: one that didn't satisfy them and another that they liked. Her students studied these pieces and wrote down what they noticed about themselves as writers. Sometimes she left students on their own; at other times she discussed the various dimensions of their writing that they might consider. As students continued to write, they revisited their earlier choices, seeing whether old favorites held up in the light of their own evolving standards. After eight months, the climate around writing had changed dramatically: part of writing was now the responsibility to know where you were and what you thought. By early June, the classroom dialogue had acquired a sound that was tough yet meditative:

"I want you to look at what you chose last time as your most satisfying piece and your least satisfying piece. You don't have to change them, but I want to give you the chance to re-evaluate them. Something that once looked good to you may look different now, or you might see something new in a piece you once thought wasn't much.

"Feel free to conference with each other. Go ahead and ask someone else's opinion. But be sure you really give them a chance to read what you have written. Don't just wave a paper in front of their face and ask them."

A student calls: "If we have two satisfying pieces, is that okay?"

"Yes, just be sure you know what you see in each of them."

Kathy pauses beside another student who is shuffling papers. "Rocky, show me what you are using."

"Is this the right one?"

"I don't care which one you choose. I'm just here to listen to your ideas."

He smiles and takes a paper out and holds it up. Kathy reads over his shoulder. "Nice choice. Now why?" Rocky begins to read the paper out loud to her. Kathy jokes: "No, you need to tell me. Think out loud about your writing."

Rocky looks quizzical.

"I want to know why you chose what you did. See, if I chose, I would probably choose different things for *my* reasons."

This slice of life in the classroom illustrates how portfolios can promote a climate of reflection. Words like *think*, *choose*, and *risk* run throughout the conversation, which is punctuated by pauses for reflection. The answer to a question is not to be found in the text, but in thinking back to earlier times, comparing pieces, and struggling to put your intuitions into words. Kathy hasn't abdicated her role as teacher, but she uses that role to insist that her students go back to their own work, requiring that they construct their own autobiographies as learners. Time and again, she brings the conversation back to what they notice, value, or worry over. She makes her students responsible for taking the lead in evaluating their work

Enlarging the view of what's learned. Because portfolios contain a range of work—fiction, poems, essays, journal entries—students come to see what is under development quite differently. While all of them still include neatness and good grammar among the dimensions of change they notice, students also come to see themselves as authors who write differently for different audiences or who make distinctive choices about how they convey information. By way of example, consider what Jeff, an 8th grader, has to say when he reflects on a piece of fiction writing based on Poe's poem "The Raven":

> I had a hard time being the Raven I knew it right away So I tried to be really creative, well, sort of crazy Now I would put some more basic story into it, I would take some of the abstractness out, put some real experiences into it I wouldn't have left the story so blank

At the end of a semester or year, teachers offer students time to study their collections, selecting several works that best exemplify what has changed for the student in that time.

Later on, when he talks about his essays on books like *Animal Farm*, he relies on a different kind of criteria:

> It's analyzing Napoleon's whole plan for how to get power. I showed each different step and how it came to a conclusion I didn't use any creative writing. I liked being able to remember about all those things. I could really lay out such a giant story into a page and a half. [I like it when] you can really wrestle with ideas.

A place for process. Any writer's work unfolds over time, starting with incubation, changing into notes, undergoing revision, settling into its near-final form, and zigzagging between these different moments as well. In fact, knowing how to pursue the work of writing is as much a part of what is learned as is the sense for where a semicolon goes or how dialogue ought to sound.

At the very simplest level, many of the portfolio pieces are fat stacks of pages that tell the story of the piece's evolution. Such unusual data allow students as well as teachers to form new questions about writing development. Rather than just comparing final pieces, students can investigate how their own revising or editing skills changed over time. Since their pieces don't disappear, students can afford to let ideas incubate and to take enormous trouble over the small changes that distinguish a third draft from a handsomely crafted final work. Student Pat Stone provides a wonderful instance of this sort of care in her series of drafts for a poem about a goose standing in a field (fig. 1).

A developmental point of view. It is no accident that many of the anecdotes offered here take the form of narratives, full of words like *then*, *before*, and *later*. The use of portfolios engages students in constructing a story—a long-term account—of what and how they learn. As they page through their collections of writing in April or June, they are struck by what they have learned But that in itself is a story. With time, experience, and conversation, students' ability to read their own portfolios with depth and understanding also develops. Early on, students appraise their own work using only standard and flat-footed criteria: neatness, length, or the grade written at the top As little as six months later, they notice and care about a widened

Teachers meeting together in small groups have begun to talk about using portfolios to widen the range of what they consider development.

range of characteristics: how effective a story is, how unusual the words in a poem are, whether the ideas and arguments in an essay are sharp. Moreover, their judgment is variegated, they know a piece can open with fireworks and fizzle in closing They can point out moments where their writing sails and where it "got away."

What emerges is not just insight about paragraphs or pieces Talking to students at the end of the school year, one finds that they know their own histories as writers. As one young poet, Justin Brown, remarked.

> When I look back, I see my poems were very basic in the beginning. they were all rhymed haiku because that was all I knew about Then I experimented with going with the feelings or ideas . . . don't kill yourself going over the rhymes, go with what you feel. I did that for two months Then I started compacting them, shortening them to make deeper meaning I could see that it would make more of a point if I washed out the *the's* and *and's* and *if's* Now I am working on something different—the morals. If one day my mom's car broke down, I might write that night about how a fish got caught, or the feeling of not being able to swim I am not trying to write how I feel only, but metaphors .

Two Faces

This study has two faces One is a wholly different way of assessing writing. Within the framework of this project, teachers have begun to talk about using portfolios to widen the range of what they consider development. They don't ignore mechanics and usage, but the talk heats up as they move on to asking one another how they can judge what a student knows about the writing process, how well a student understands the demands of writing journals, poems, and essays; how many risks a young writer is taking.

At the same time, teachers are using these same portfolios to look at their *own* skills and development. At least once a year, a letter arrives in the mail asking teachers to select three to five folders that illustrate exceptional, moderate, or limited progress in writing. The letter alerts teachers that a supervisor will be coming to talk with them about writing. The conference is a time to describe how they are teaching a variety of types of writing, how they encourage students to engage in the several phases of the writing process, and how they comment on and critique student work. Several weeks later, the supervisor and the teacher grab a cup of coffee before school or in a "prep" period and then sit down to "do portfolios." These discussions may be a teacher's chance to talk about what portfolios contribute to student assessment, or the portfolios may serve to highlight places where a particular teacher struggles. But, in either case, during that half hour, teachers take active responsibility for portraying *their* work; they examine many facets of teaching; they don't use tests or first-draft writing samples but evidence of the writing process and the back-and-forth between teacher and student. The result is not a score on a teachers' exam. Instead, it is a reflection on a sample of work. Like student portfolios, it offers a humane, useful, and generative portrait of development—one that a teacher, like a student, can learn from long after the isolated moment of assessment.☐

Author's note. I would like to acknowledge the close collaboration of students, teachers, and supervisors in the Pittsburgh Public Schools. This work was developed from a paper presented April 8, 1988, at the American Educational Research Association Meeting, New Orleans, Louisiana. The research reported here was supported by a grant from the Division of Arts and Humanities at the Rockefeller Foundation

Portfolio is the quarterly newsletter of the PROPEL project. It prints writings by teachers and researchers and provides samples of student work and the different forms of assessment being developed. Available from Project Zero at the address below

Recommended Readings

Brandt, R. (December 1987/January 1988). "On Assessment in the Arts: A Conversation with Howard Gardner." *Educational Leadership* 45, 4: 30-34.

Wolf, D.P. (1986). "All the Pieces That Go into It: The Multiple Stances of Arts Education." In *Aesthetics in Education. The Missing Dimension*, edited by A. Hurwitz. Mattituck, Md.: Amercon Press.

Wolf, D.P. "Artistic Learning: What and Where Is It?" *Journal of Aesthetic Education* 22, 1: 144-155.

Wolf, D.P. (December 1987/January 1988). "Opening Up Assessment." *Educational Leadership* 45, 4: 24-29.

Zessoules, R. (1988). "A Better Balance." In *Beyond DBAE: The Case for Multiple Visions of Art Education*, edited by J. Burton, A. Lederman, and P. London. North Dartmouth, Mass.: Southeastern Massachusetts University.

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Rite of Passage Experience Handbook

Feeney, T. M (1984). *Rite of Passage Experience Handbook*. Racine, WI: Walden III Alternative Secondary School, Racine Unified School District.

For more information on the Right of Passage Experience Handbook, contact:
Charles Kent
Walden III Alternative Secondary School
1012 Center Street
Racine, WI 53403

INTRODUCTION TO R.O.P.E.

Walden III's R.O.P.E. requirement, the Rite of Passage Experience, is one factor that makes Walden different from other area high schools and from most high schools in the United States. R.O.P.E. is a modern Rite of Passage designed to evaluate students' readiness for high school graduation and life beyond high school.

In American education generally, there has been an increased concern with competency as a standard for high school graduation. Many methods of determining competency, usually involving standardized testing, have been investigated in recent years across the United States.

At Walden III, however, interest in competency has been a reality since 1973. The unique R.O.P.E. requirement is designed to measure competency in terms of actual mastery, not just credit-counting or superficial standardized test scores in a limited number of areas. Based on the belief that knowledge should be cumulative, this approach bases graduation upon real knowledge inside a student's head when the student finally walks out the doors of Walden for the last time.

The R.O.P.E. program is also unique because it goes beyond just measurements and scores. In R.O.P.E., young adults are afforded a rather unique and necessary opportunity for self-assessment; an opportunity, in other words, to take a close look at themselves -- past, present, and future -- and to assess their own skills and potential.

Consequently, Walden's mastery approach is the culmination of a quality high school education. With this in mind, students who finish the Rite of Passage have every right to be proud of having completed one of the finest high school educations in the United States.

OVERVIEW: THE R.O.P.E. PROGRAM

The actual R.O.P.E. program consists of sixteen areas of human knowledge and skills, not the usual perfunctory four or five involved in most competency testing programs. The inclusion of these areas is intended to provide a valid reflection of a student's entire high school education. These areas are discussed in detail in later sections of this Handbook.

R.O.P.E. students are required to demonstrate mastery in the sixteen areas in presentations before a R.O.P.E. committee consisting of staff, a student, and an outside adult. The committee helps guide the student through R.O.P.E. and eventually evaluates the student's performance in the presentations on the specific R.O.P.E. areas.

During the first and second quarters of the senior year, potential graduates are enrolled in a special R.O.P.E. class designed to assist students in the mechanics of preparing R.O.P.E. materials and presentations. The R.O.P.E. class, which is taken for credit, is required of all potential graduates.

Preparation for the R.O.P.E. presentations involves three required phases: a written Portfolio, a written Project, and oral Demonstrations. These features of R.O.P.E. serve as a focus for the student to gather information and prepare for presenting the specific areas to the R.O.P.E. committee. Portfolio, Project and Demonstrations are also explained in detail in later sections of this Handbook.

The actual R.O.P.E. presentations usually start at the beginning of the third quarter. Presentations are required to be completed, and the R.O.P.E. requirement finished, by the time of the Memorial Day break.

HOW TO USE THE R.O.P.E. HANDBOOK

The R.O.P.E. Handbook is intended as a general guide to explain R.O.P.E. requirements and procedures and to start the student through his or her personal Rite of Passage. R.O.P.E. students are beginning a process of inquiry into their own education and their own future. More of what goes into R.O.P.E. must come from the students on an individual basis. The Handbook is designed simply as a reference tool to supplement the R.O.P.E. class and, most importantly, the direction and guidance of the R.O.P.E. committee.

Each section of the Handbook is written to provide a basic outline of what is required minimally in one particular aspect of R.O.P.E. There are sections dealing with deadlines, form and purpose of Portfolio and Project, the role of the R.O.P.E. committee, and the scope of requirements for individual R.O.P.E. areas. The sections on the R.O.P.E. areas, organizationally, are generally grouped under the Portfolio, the Project, or the Demonstrations.

At the conclusion of the Handbook, there is a short GLOSSARY section of "R.O.P.E. terms." The intention of this section is to clarify certain key terms without confusing the directions in the Handbook proper. The GLOSSARY should not be taken as a source of "answers" on R.O.P.E., however. The understanding and mastery desired in R.O.P.E. goes much deeper than simple definitions.

Finally, the end of each section usually highlights what are called "Inquiry Questions." These are questions (in boxes) intended to give the students a starting point that goes beyond just the mechanics of R.O.P.E. In essence, the purpose of the "Inquiry Questions" is to illustrate the spirit of what is intended in the Rite of Passage.

All that remains is for the student to begin taking that unique look at himself - or herself -- past, present, and future.

The following list represents the areas of R.O.P.E. which the student must cover in his/her presentations to the R.O.P.E. committee. Pages 6 - 8 of the Handbook explain deadlines, graduation requirements, the role of the R.O.P.E. committee, etc. Pages 9 - 39 give a basic explanation of the areas themselves and what is required for the Portfolio, Project, and Demonstrations. This "checklist" is also designed to serve as a continuing record for the student of his/her progress through R.O.P.E.

AREA	R.O.P.E. Mtg. Date	Eval.
1. English *	________	________
2. Reading*	________	________
3. Mathematics*	________	________
4. Government*	________	________
5. Self-Expression	________	________
6. Personal Growth	________	________
7. Ethics	________	________
8. Fine Arts	________	________
9. Mass Media	________	________
10. Human Relations	________	________
11. U. S. History	________	________
12. Science	________	________
13. Multicultural Awareness	________	________
14. World Geography	________	________
15. Personal Proficiency Areas	________	________
16. Physical Challenge**	________	________

* District Competency Areas.

** Senior Check-off: P. E. Instructor

DISTRIBUTION AND COVERAGE OF THE R.O.P.E. AREAS

A frequent source of confusion for R.O.P.E. students is the relationship of Portfolio, Project and Demonstrations to the specific R.O.P.E. areas. The "model" below is intended as a general guide as to how the R.O.P.E. areas may be covered. Specific cases can and will differ, however, so students are advised to consult with the R.O.P.E. instructor and, especially, with the individual R.O.P.E. committee on the final approach to their own personal R.O.P.E.

PORTFOLIO

- 2 Reading
- 1 English
- 5 Self-expression
- 13 Multicultural *
- 6 Personal Growth
- 7 Ethics
- 8 Fine Arts
- 9 Mass Media
- 10 Human Relations
- 12 Science

PROJECT

- 11 U. S. History
- English
- Self-expression
- Multicultural *

DEMONSTRATIONS

- 3 Mathematics
- 4 Government
- Self-expression
- 14 World Geography
- 16 Physical Challenge**
- 15 Proficiency Areas

*	Multicultural Option - see p. 25 - 26
**	Check-off by P. E. Instructor
___	District competency area
○	Rope Area

The key element of the Walden Rite of Passage is the student's individual R.O.P.E. committee. Each R.O.P.E. student is under the supervision of a committee consisting of his/her homegroup teacher, the homegroup teacher's R.O.P.E. partner from the staff, a Walden student (preferably a junior) selected by the R.O.P.E. student, and an outside adult also selected by the R.O.P.E. student. The Walden student may not be another senior.

Above all, the role of the committee is to evaluate presentations by the student in the R.O.P.E. areas, and to evaluate the Portfolio and the Project. General guidelines for the Portfolio, the Project, and the oral demonstration areas are dealt with in the Handbook and in R.O.P.E. class, but the final decision in areas concerning the student's R.O.P.E. is in the hands of the R.O.P.E. committee.

The R.O.P.E. committee also has an instructional role: Staff members of the committee are usually available to answer questions and to help with R.O.P.E. materials. Some committees, by request, meet periodically with their R.O.P.E. students to discuss the Rite of Passage and to monitor student progress. Students are encouraged to take full advantage of this role of the R.O.P.E. committee.

R.O.P.E. committees usually begin meeting with students for presentations at the start of the third quarter. Meetings are scheduled on an individual basis according to the practice of the committee. The student should be able to finish his/her R.O.P.E. presentations in four or five meetings.

IMPORTANT NOTE: To avoid confusion, it is necessary to re-emphasize that all of the R.O.P.E. areas must be presented to the committee. This includes both the written parts of R.O.P.E., the Portfolio, and Project, and the oral Demonstration areas.

> Given the major role of the R.O.P.E. committee, and the individual approach to R.O.P.E., what can a student do to get off to a good start with his/her work on R.O.P.E.?

There are three types of deadlines involved in R.O.P.E. at Walden:

1. All R.O.P.E. presentations must be completed (attempted and evaluated) by the Memorial Day break in order for a student to be a candidate for graduation. Memorial Day break ________.

2. The R.O.P.E. Portfolio and the R.O.P.E. Project: No student shall graduate less than one semester after completing his/her Portfolio and Project (i.e., Portfolio and Project must be completed one semester before a student graduates). This means that for prospective June graduates the Portfolio and Project have to be accepted as presentable by the R.O.P.E. committee by the last official day of the second quarter. Last day of second quarter ________.

3. Completion of the Portfolio and Project is the main criterion for a passing evaluation and credit in the R.O.P.E. class required of all seniors. The Portfolio and Project, in presentable form, must be handed in to the R.O.P.E. instructor one week before the last official day of the second quarter. Due date ________

NOTE:

The main objective of the R.O.P.E. class is the preparation of the Portfolio and the Project: time-management, organization, and presentability. The class does not duplicate the evaluation function of the R.O.P.E. committee. It will be the function of the committee, individually, to evaluate the specific quality of materials in the student's R.O.P.E. presentations.

- What is the purpose of deadlines? The consequences?
- When should a student start his/her maximum effort in preparing R.O.P.E. materials?
- How does procrastination affect deadlines?

I. To graduate from Walden III, students must complete the R.O.P.E. requirement. (See page 7 relevant deadlines.)

II. The R.O.P.E. presentations in the individual R.O.P.E. areas are evaluated by the R.O.P.E. committee on a scale of A, B, C, D, and E:

A = Excellent	(superior quality work)
B = Competent	(above average work)
C = Satisfactory	(average work)
D = Substandard	(passing but below average work)
E = Unacceptable	(work not acceptable as passing)

The Portfolio and Project are not given an evaluation as such in the R.O.P.E. class or by the R.O.P.E. committee, but both must be accepted as presentable by the R.O.P.E. instructor and the R.O.P.E. committee before a student may begin his/her presentations of the individual areas.

III. Mathematics, Government, Reading, and English are Racine Unified School District competency requirements on a district-wide basis. Students must receive passing evaluations on their presentations in these areas in order to receive competency seals for the four areas on their diplomas. If one of these areas is not passed on the first attempt, that presentation must be repeated at least once after appropriate review work.

IV. R.O.P.E. candidates are required to receive passing evaluations in a minimum of twelve of the sixteen R.O.P.E. areas in order to complete the R.O.P.E. requirement and subsequently graduate. All of the R.O.P.E. areas must be attempted and evaluated in presentations before the R.O.P.E. committee.

PORTFOLIO

INTRODUCTION

Every Walden R.O.P.E. senior is required to present a R.O.P.E. Portfolio to his/her committee. The student's Portfolio is usually prepared during the first quarter of R.O.P.E. class.

The purpose of the Portfolio is twofold: In part, the Porfolio consists of a collection of materials designed to assist the student in his/her presentations to the R.O.P.E. committee. At least eight of the R.O.P.E. areas will usually be included in the Portfolio, and the completed Portfolio serves as a useful outline and support for the student's presentations.

Most importantly, however, the Portfolio is a unique opportunity for the graduating seniors to take an in-depth look at themselves -- past, present, and future. Few adults enjoy this opportunity for a searching <u>introspection</u> into their past, where they are now, and where they are going.

There is no one way to do a R.O.P.E. Portfolio. Just as individuals are widely different, individual R.O.P.E. Portfolios will (and should!) reflect the differences that exist among people. Creativity and individualism in the Portfolio are not just encouraged -- they are necessary! Style and a good proportion of content should be individual just as students themselves are individuals.

What is intended by the next few pages of the <u>Handbook</u> is to outline the <u>common basic requirements</u> for the Portfolio's general form and content. Later sections of the handbook provide explanations of the fundamentals of the individual R.O.P.E. areas which are covered in the Portfolio.

FORMAT AND MECHANICS

Quality is the final test of all R.O.P.E. materials. The Portfolio (and the Project) should be written in clear, grammatical English that reflects the expected proficiency level of a high school graduate. As far as possible, spelling and grammatical errors should be eliminated before the R.O.P.E. materials are presented to the student's committee.

In order to meet these high standards, the R.O.P.E. student is expected to understand that it it necessary to do a rough draft of the Portfolio, and then a final, corrected draft, before submitting it to his/her committee. The final product should be relatively error-free -- a clear reflection of the student's pride in his/her education.

Neatness and organization are also stressed in the R.O.P.E. Portfolio. The Portfolio is required to have a title page and a table of contents. It must also be written in ink or typed on standard-size theme paper. Some type of binder or folder can be useful to hold and protect the completed Portfolio.

Section headings and sub-section headings are recommended to promote clarity and readability in the Portfolio. Photographs, charts, drawings, and appendices with samples of student work are also encouraged. The style of the Portfolio writing should reflect the student's individual creativity.

Once again -- the purpose of the Portfolio is to make a clear statement about the individual's PRIDE in his/her abilities and accomplishments. The way to achieve pride is to work for excellence.

AUTOBIOGRAPHY AND EDUCATION

The core of the R.O.P.E. Portfolio has to be the student's own life and experience. In other words, the main emphasis in the Portfolio has to be a reflection and an analysis of the graduating senior's own life and times, past, present, and future. . .

To achieve this goal, each R.O.P.E. senior is required to write a personal autobiography outlining his/her life and education. In many ways, the autobiography is the most important section of the Portfolio. It is not meant to be merely a third grade-level chronology of events on the order of those themes everyone remembers having to write about a summer vacation at some time or another. Rather, the autobiography should be an important and useful reflection of the student's growing understanding of his/her own place in the universe.

In the autobiography, there is a wide range of appropriate subjects for the R.O.P.E. student: family, family history, friends, growing up, vacations, achievements and skills, personal likes and dislikes, opinions and beliefs, important events, etc. Especially, it is important to concentrate upon things that influenced personal growth and development.

Because it involves most of the student's life to date, education will probably be the most important and largest part of the autobiography. It is expected that the student will summarize his/her years of education as a matter of course. But, also, the student should analyze his/her educational career. Favorite teachers, no-so-favorite teachers, schools, good classes, bad classes, influential people, and personal strengths and weaknesses are all relevent themes for the education part of the autobiography. If desired, courses and evaluations for high school work may also be included as a supplement to this part of the autobiography.

AUTOBIOGRAPHY AND EDUCATION (Continued)

The autobiography is usually a frustrating part of R.O.P.E. for most people. It is hard to write about oneself. And it is difficult to give a cut-and-dried explanation of exactly how to write the autobiography. Just as each student is an individual, each autobiography will necessarily be individual; therefore, it would be impossible, even if it were desirable, to dictate a single standard pattern for the autobiography.

In one sense, it is a test of creativity and individualism. It is a major opportunity to show personal creativity in style and substance. Creativity can be demonstrated in the form and approach used for the autobiography. Some students, for example, have chosen to use story form, or diary form, or a stream-of-consciousness approach in their writing. Whatever the form, the role of creativity in the autobiography is to allow the expression of the personality, style, and outlook of a self-aware individual.

- To raise the old, old question, what is a life?
- What is the difference between significant and trivial events and experience?
- Is there a difference between "friendship" and "casual acquaintanceship"?
- What is a good yardstick for determining importance in a person's life?

SELF-ASSESSMENT

More than for any other reason, the R.O.P.E. senior is asked to write an autobiography to judge his/her progress in fashioning a life. Education, friends, personal abilities, and social skills are all part of preparing for living. Most people would take this for granted; however, never stop to consider and to try to understand their own preparation.

In primitive societies, this was often the transcendant purpose of a rite of passage: new adults were required to answer certain all-important questions about their preparation according to the needs and beliefs of their societies.

At Walden III, the Rite of Passage was developed for basically the same reason. In the autobiography, the Walden III R.O.P.E. student is expected to devote considerable space to looking at his/her personal progress in preparing for the outside world. This part of the autobiography may take the form of an introduction or a conclusion or a constant thread throughout. Whatever the case, the student is really just asking and trying to answer a few "simple" questions in an ancient human tradition:

"Who am I"?
"What is it to be human"?
"Where am I going"?
and
"Am I ready"?

- Why isn't there a specific page requirement for the autobiography?
- Who or what is responsible for the shape of your life? Now? In the future?
- What do you still need to learn or do to be ready for what you want in life?
- Are you satisfied with the "finished product"? Why? Why not?

In American society, the work ethic and responsibility play an extremely important part in our culture. Whatever one's personal opinion on these subjects, every high school graduate should have some understanding of the role they play in his/her society and culture.

Not all students may have had formal job experience, but all have had at least some exposure to work or responsibility at home or elsewhere. In the Portfolio, the Employment Responsibility section should include the following:

1. a summary of major responsibilities and/or formal or informal work experiences the student has had.

2. for each experience, a reflection on the skills, learnings, and values gained from that experience.

3. the student's personal reaction to the particular experience(s) and to work in general.

Part of this section may be written in the form of a resume if so desired. Alternatively, the entire section may simply take the form of a straight written report.

- What is the purpose of work? For an individual? For a society?
- Are there both positive and negative aspects to the American work ethic?
- Do you have a philosophy of work? Is it necessary to have one?
- What R.O.P.E. areas can be related to this section?

LETTERS OF RECOMMENDATION

At least two written or typed letters of recommendation must be included in the Portfolio. Two is only the minimum. More letters, in some cases, may be a good idea; but it is probably a good policy for the student to check with the individual R.O.P.E. committee to see what they will or will not accept. Letters may be from family members, employers, friends, teachers, etc.

SUGGESTIONS:

Select the writer carefully. They should be people who know the student well and can write a good letter of recommendation.

Make sure that the writers understand the purpose of the letter and the R.O.P.E.

Give the writers adequate "lead time" so that they can put their best effort and concentration into the letters of recommendation.

- What are some of the subjects people should write about in a good letter of recommendation?
- How could the letters of recommendation be used in connection with certain R.O.P.E. areas? Which areas in particular would be well-suited for this?
- Are there any sources that are preferable for these letters?

READING RECORD

There are two parts to the requirement for the reading section of the Portfolio:

1. A bibliography, in standard form, of the reading the student has done during his/her high school career. Books, magazines, and newspapers that students read regularly should all be included in the bibliography. Students may also want to include a short list of books they want to read and plan to read in the future (a reading plan, in other words.) It is acceptable to include reading for school classes other than textbooks.

2. At least two mini-book reports on works selected from the Reading Record: The mini-book reports should summarize the books' content, the books' main themes or theses, and the impact of the books on the student. Ideally, books should be selected which really represent the student's reading habits, and which the student feels are interesting and significant.

Because Reading is a District competency area, the Reading Record should be prepared very carefully. A passing evaluation in Reading is required for the student to receive a seal of endorsement on the diploma.

Students may also wish to include scores from standardized tests (e.g., CTBS) as additional evidence of their Reading competency. The length of the Reading Record, and how far back it goes, will depend upon the individual.

- What types of questions would a R.O.P.E. committee be likely to ask about Reading?
- Is it a good idea to "pad" the list with impressive-sounding titles you never actually got around to reading?
- What are the skills that you use to judge your strengths and weaknesses in reading?

ORAL EXPRESSION AND REFLECTIVE EXPRESSION

The self-expression area of R.O.P.E. is not a separate, distinct section of the R.O.P.E. Portfolio or the Project. Students are required to present this area orally to the R.O.P.E. committee by pointing to evidence of their abilities found throughout the written and oral parts of R.O.P.E. The presentation of this area will be discussed at further length in R.O.P.E. class.

For the purpose of simplicity, self-expression in R.O.P.E. is broken down into two sub-areas: reflective expression and oral expression. The student must be able to define these areas, their purpose and value, and to show understanding of his/her personal strengths and weaknesses.

Reflective expression and oral expression often appear less specific, less clear than other R.O.P.E. requirements. As a starting point, therefore, the Handbook suggests the following working definitions:

Oral expresion:	spoken communication of ideas and information to other people. Important factors in good oral expression are vocabulary, organization, fluency, and precision.
Reflective expression:	written and oral communication of ideas that have been "thought out" by the individual. To "reflect" means that the mind must think back on whatever is being examined and communicated. Every area of R.O.P.E., potentially, requires reflective expression.

- The English poet John Donne is famous for the statement "No man is an island..." How does this relate to self-expression?
- Does reflective expression really only require thinking back over ideas, experiences, etc.?
- Which parts of the R.O.P.E. requirement are especially linked to reflective expression?

INDEPENDENCE, INITIATIVE, AND PRODUCTIVE SELF-WORTH

The personal growth area of R.O.P.E. is another which is not required to be a separate section of the Portfolio. Growth can be measured in many different ways -- in life as in a student's R.O.P.E. Personal growth can be treated as a separate section, or a discussion of personal growth can be incorporated into the autobiography. The student is expected, however, to be able to identify and discuss personal areas of growth in his/her presentation to the R.O.P.E. committee.

Two aspects of the process of growth which must be covered in any event are: independence and initiative and productive self-worth. The R.O.P.E. senior is expected to understand the importance of these qualities and to be able to relate them to his/her own experience.

Independence and initiative refer to the qualities of self-reliance and self-motivation. Productive self-worth refers to an individual's knowledge of self - worth and abilities -- and his/her actual or potential contribution to the community and the world at large.

One measure of growth, in fact, is the individual's ability to analyze these qualities in his/her own life. The R.O.P.E. class and the R.O.P.E. Handbook can offer some help in this area, but in the final analysis, personal growth is based on self-knowledge.

- What are the advantages and disadvantages of independence?
- What relationship does the question "Who told you to make your bed this morning?" have to initiative?
- Besides the autobiography, do any other parts of R.O.P.E. illustrate personal growth? Which one? Why?
- Why does productive self-worth have to involve other people? (Is this an accurate statement?)
- Which is more important: Self interest? Productive self-worth? How are the two related?

ETHICAL JUDGMENT

American public schools traditionally do not, and should not, proselytize any particular systems of ethics or moral values. Graduating seniors should, however, be aware of the role played by ethics in the life of the individual and society. It is for this reason the R.O.P.E. requirement asks students to reflect upon their own personal understanding of ethical judgment.

In this section of the Portfolio, the student is required to write an essay summarizing his/her own personal ethical code. As far as possible, the ethical code should be systematic and should represent careful thought on the part of the student.

Questions which must be addressed in the ethical code include:

1. What is/was the source of the ethical code of values?
2. How does the code affect the student's judgment of his/her own actions? The actions of other people?
3. Why is the code a good one to follow?
4. How should ethical values be applied to governments and other institutions? Do governments always follow the same standards as individuals?

It should be clear that this section is one where reasoning is very important. Statements and arguments should be supported with reasons and evidence to the best of the student's ability.

- What is the source of most ethical systems in the world?
- Are ethical principles always based on the same beliefs?
- People often use ethics and morals in the same sense. Is there a real difference between the two?
- Why are "right" and "wrong" important? Are they important?
- Has the Golden Rule become tarnished? What is the Golden Rule?
- Do you think "Do your own thing" is a good philosophy for today?

CREATIVE EXPRESSION AND APPRECIATION

All parts of R.O.P.E. encourage and welcome creativity. However, the fine arts requirement is totally concerned with creative expression and/or creative appreciation.

In this section, students are asked to give evidence of talent, experience, and/or knowledge and understanding in an area of fine arts. Appropriate areas include the visual arts, music, drama, literature, photography, dance, etc.

Presentation of the fine arts requirement involves two parts: First, the student has the option of using a demonstration, an oral report, or a written report to show his/her talent and/or knowledge and understanding to the R.O.P.E. committee. In demonstration or oral reports, the student may exhibit samples of his/her work or demonstrate a skill or talent. The student will be expected in this option to also show a good general understanding of his/her particular area. If the student chooses to do a written report, it should demonstrate the same good general understanding of a particular area. The written report should be included as part of the fine arts section of the Portfolio.

Second, each R.O.P.E. student must write a short essay on the standards for judging quality in his/her chosen area. This would include the student's own standards and also reflect understanding of generally accepted standards for the particular area. In other words, the essay will focus on aesthetic judgment and how it applies to the student's interest. Moreover, the essay should explain how the student developed those standards of aesthetic judgment.

- Why does R.O.P.E. include questions of taste in a high school competency program?
- Evaluate the statement: "Know what I like, but I can't say why..."
- Can any one person's taste be considered better than another's?
- What is the role of the fine arts in your life? In American society and culture?
- Are aesthetic standards always formed independently?

MASS MEDIA UNDERSTANDING

This section of the Portfolio requires the student to demonstrate understanding of the nature and influence of mass media: T.V., radio, newpapers, magazines, advertisements, movies, popular music, mass-market books, popular news and press, etc. Above all, the section should explain how mass media and modern communications have changed the world.

The Portfolio section requirement on mass media will be satisified by a written report, but students are free to include actual examples of mass media use in the Portfolio and in their presentations.

In explaining mass media, this section should relate to the following themes:

1. positive and negative uses of mass media.
2. major influences that control mass media.
3. planted news and propaganda.
4. advertisements and false advertising: techniques and examples.
5. personal uses for mass media by the students.
6. at least two examples of how current issues are treated in mass media.

Finally, understanding of mass media should mean knowledge of the difference between mass media and non-mass media items.

- Was mass media an important factor throughout human history?
- What invention(s) influenced the growth of mass media?
- What is the role of sexism in American mass media?
- How does the economy (economics) affect mass media in the United States?
- In connection with mass media, what is meant by the term "global village"?

SERVICE, CITIZENSHIP, AND GROUP WORK

Human Relations is an area of R.O.P.E. which concerns the skills and experiences of the R.O.P.E. candidate that related to living with other human beings in groups and in society as a whole. This part of R.O.P.E. may be satisfied either by materials in the student's autobiography or by a separate section of the Portfolio.

For purposes of definition and explanation, the human relations requirement is divided into two sub-areas: service and citizenship and group work. The following explanations are intended to outline the basis understanding the student is expected to demonstrate in the Portfolio and presentation:

Service and Citizenship:

Service refers to voluntary work done for other individuals, groups, or for the community. Citizenship means the responsibilities, obligations, and privileges of the individual as a member of his/her community and society. It is expected that graduating seniors would show understanding of the nature and importance of these activities. Examples of personal experience(s) in these activities should also be related.

Group Work:

This refers to any work or activity by two or more persons that is designed to achieve a common goal. Group work is basic to almost all human activities. In R.O.P.E., students must demonstrate knowledge of the purposes and function of formal and informal group activity. As in service and citizenship, the student must illustrate his/her presentation with examples of personal participation in group activities.

- Why would anyone bother doing something for free?
- What are the most important obligations of the citizen?
- What are the types of skills people need to work in groups?
- Why is group work considered basic to human activities?
- What are some of the roles people play in groups?

SCIENCE AND SCIENTIFIC METHOD

Science education and scientific understanding cannot be over emphasized in today's world. Unlike many competency programs, the Walden R.O.P.E. requirement places particular emphasis upon scientific understanding as being essential to high school graduation.

There are four parts to the R.O.P.E. science section for the Portfolio:

I. Course-work history: A written summary, including evaluations, of the student's high school courses in science, computers, and technology. Standardized test scores may also be included in this part of the section.

II. Science experiment: A description, in reasonable detail, of a controlled experiment which shows the practical application of the scientific method. The description of this experiment must include explanation of the steps of the scientific method and how they relate to the experiment. Students are also free to exhibit or demonstrate the actual experiment in the presentation before the R.O.P.E. committee. Understanding of the scientific method and its significance is considered basic to science education and is required of Walden III graduates. (See Scientific Method - GLOSSARY)

III. Science and Technology Essay: The science section must include an essay by the student on the following topic: "Are science and technology capable of solving all types of problems faced by the world today"? Examples of problems the students may wish to consider are pollution, energy shortages, nuclear energy safety, war, hunger, birth defects, racism, etc.

The essay must be supported by examples and reasons. Reasons should be explained carefully and in depth. Explanation of the topic should include the difference between problems that can be solved by science and technology and those which cannot.

SCIENCE AND SCIENTIFIC METHOD (Continued)

IV Computer Essay: "Computer literacy" is an important new aspect of the individual's understanding of the modern world. For this part of the science section, a short essay-report on the nature and uses of computers is required. The emphasis in the essay should be placed on the present and future role(s) of the computer seen by the student. A summary of course work and evaluations in computers and computer technology may be included here instead of the course-work section if the student wishes.

As in science generally, clear and concise use of terminology is stressed in the science section. Help in preparing this section is available in R.O.P.E. class and from instructors in the Science Department. Some useful vocabulary is provided as a starting point in the GLOSSARY section of the Handbook.

Can you give a good definition of science?

What is the difference between science and the humanities?

Why is method so important in science?

Is there a moral aspect to the role of science and scientists?

Examples: genetic research and weapons' research

Is the United States caught in a technology trap? What are the dangers involved in applying a technology fix as a solution to problems?

Do you know: How to generate electricity? How to grow vegetables? How to make a spearpoint? Why these questions were included?

What do you think will be the future of "Thinking machines"? What should be their future?

THE MULTICULTURAL AWARENESS OPTION

Culture is the pattern of behavior, beliefs, traditions, customs, social institutions, and values that a group of people share together. Because the United States is built upon many different cultures, it is essential for an educated adult to understand both the advantages and the problems connected with living in a multicultural society.

There are two options open to the R.O.P.E. student for meeting the Multicultural Awareness requirement:

PORTFOLIO OPTION - The straight-line approach to multicultural awareness is to write an essay on the subject for the Portfolio. The essay may focus on any particular aspect of the multicultural society that the student chooses, but the overall scope of the essay must include the following points:

1. the role of culture in society
2. the student's own cultural heritage and its importance.
3. comparison of the United States, as a multicultural society with homogeneous societies.
4. the "pros" and "cons" of living in a multicultural society, including personal views.

In addition, the R.O.P.E. senior will be expected to show reasonable familiarity with related vocabulary and concepts such as the melting pot, racism, prejudice, ethnicity, assimilation, discrimination, etc.

(Students who need to review this area may refer to the GLOSSARY, but additional inquiry will undoubtedly be necessary.)

PROJECT OPTION - As an alternative, the Project may be written on a topic directly related to some aspect of the multicultural society in the United States as part of the U.S. History requirement. Examples of general topic areas might include: civil rights, racism, immigration, ethnic groups, Native Americans, etc... The topic and its focus should be approved by the individual R.O.P.E. committee.

THE MULTICULTURAL AWARENESS OPTION - continued

If this option is selected, students are still required to demonstrate familiarity with the information and concepts referred to in the Portfolio Option during the oral presentation to the R.O.P.E. committee. Under both options, Multicultural Awareness must be presented orally as a separate area.

- How do you get "culture"? Is is possible to be "culturally deprived"?
- Are the ideals of the melting pot working in the United States today?
- What are the causes of racial prejudice?
- Has the United States "solved" discrimination?
- What are some positive benefits of living in a multicultural society?
- How does "scapegoatism" work as a form of racial prejudice?

PROJECT

INTRODUCTION

The R.O.P.E. Project is designed to help demonstrate the student's competency in several important areas: U.S. History and Logical Inquiry, English writing, Self-expression, and, in some cases, Multicultural Awareness. Generally, R.O.P.E. candidates start the Project in R.O.P.E. class during the second quarter of their senior year.

This part of R.O.P.E. involves a significant research project in American history. With the assistance of the R.O.P.E. committee and the R.O.P.E. instructor, seniors select a topic of personal interest to showcase their mastery of writing, American History, and learning skills. (See p. 29 Logical Inquiry and p. 30-31 American History.)

As with the Portfolio, high standards of quality reflecting a high school graduate are required. The final project must be written in ink or typed and should be relatively error-free. An appropriate title page should be included, and standard footnotes* and bibliography are required. The rough draft of the Project should be carefully proofread and corrected before a final draft is prepared for the R.O.P.E. committee.

Most R.O.P.E. Projects involve library research; therefore, good library reference skills are essential.** Seniors who feel weak in this area are advised to consult with the librarian or the R.O.P.E. instructor early in the second quarter for special help.

* Note: most universities now are not using standard footnotes anymore, but a "note" page at the end, followed by "references" and then "bibliography." Why not consider this?

** See GLOSSARY

LOGICAL INQUIRY

The purpose of the Project is not merely to see whether the graduate can write a research paper. It would be silly to assume that any significant percentage of high school graduates are destined to become paper writers.

Ultimately, the real purpose of the Project, and R.O.P.E. as a whole, is to show that the R.O.P.E. student has learned how to learn without constant guidance and supervision by a teacher. R.O.P.E. is a graduation exercise that, in effect, proves that the student no longer needs high school.

The process of learning about something on one's own is called logical inquiry. It is a system with precise steps for thinking and planning how to efficiently gather information. (See GLOSSARY.)

For the purpose of the R.O.P.E. requirement, logical inquiry is formally tied to American History in the form of a research project. The possible uses of logical inquiry extend considerably beyond American History and research projects, however.

R.O.P.E. senior will be expected to explain how they used logical inquiry for the Project when they present the U.S. History area. It will also be expected that seniors will understand the general uses and importance of logical inquiry, and also the difference between logical inquiry and scientific method.

- What are some of the uses of logical inquiry outside of formal academic studies?
- Can you define the roots of logical inquiry? Logic? Logical? Inquiry?
- How does type of information relate to the difference between logical inquiry and scientific method?
- What occupations or professions make regular use of logical inquiry? Scientific method?
  What was the method used by Nostradamus? The method used by psychics?
- Why might there be an advantage to using a system for learning about something?

UNITED STATES HISTORY

In addition to demonstrating logical inquiry, the basic purpose of this area is for the R.O.P.E. candidates to show mastery of their national history. American History is taught throughout students' high school careers. At this point, the prospective graduate should understand U.S. History at a reasonable level for an educated adult in American society and culture.

There are two parts to fulfilling the U.S. History requirement:

1. The Project - For the Project, seniors will generally select a significant topic and write a major research paper on an important these in U.S. History. (Alternate types of projects must have the specific approval of the individual R.O.P.E. committee in advance.) It is not acceptable for the Project to be a third-grade summary of the life of a famous person taken from an encyclopedia. The clear intent of the Project should be to investigate some important question, problem or theme in U.S. History.

   Examples of significant topic areas might include: political ideas in colonial America; causes of the Civil War: the civil rights movement; religious movements in America; Women's Liberation movements; political protest in the 1960's; the Iranian hostage crisis; art (or music) and American values; or, the effects of the Vietnam War. It should go without saying, at this point, that it will require several good sources to learn about this type of topic.

   Not less important, the topic should interest the R.O.P.E. candidate. If the writer is not interested, it is unlikely that the R.O.P.E. committee will be any more excited about the final result.

2. The U. S. History presentation - In presenting this area, students will be expected, minimally, to summarize their written Project and to explain how it illustrates an important aspect or theme of U. S. History. Questions should be expected from the R.O.P.E. committee.

In addition, students are required to present some kind of overview of American History. It is up to the student to select the basis for the overview – e.g., wars, formal periods of history, national expansion, industrial development, technology, stages in political development, etc. The point of this requirement is for the student to demonstrate some sense of the progression of the U. S. History. The basis for the overview should be clearly explained in the presentation.

Finally, as part of the presentation, students will be expected to be prepared to field reasonable questions on the area of U. S. History in general. Seniors who need a "refresher" in U. S. History should allow time for review before presenting this area to their committee. The R.O.P.E. class will provide help and guidance in reviewing this subject.

- How can a topic be related to the R.O.P.E. senior?
- What types of information are important to remember about a country's history?
- Is history always based on books or other written sources?
- Who fought in the French and Indian War? What were the Articles of Confederation? Where was the Underground Railroad? When was World War II? Why did the South pass Jim Crow laws? How did George Washington get to be a general?
- What is your place in history?

WORLD HISTORY OPTION - Advanced students who want to make a particularly fine presentation in the oral or written part of this requirment may take a comparative history approach involving knowledge of the history of other countries. A student might, for example, compare development in the U. S. to developments in world history in his/her oral presentation. Or, a student may wish to focus the written Project on a comparison of a theme in U. S. to a similar theme in European history, for example. Under this option, the basics of the U. S. History area must still be met, however.

DEMONSTRATIONS

OVERVIEW

Several areas of R.O.P.E. are not covered in either the Portfolio or the Project. These are Mathematics, American Government, World Geography, Personal Proficiency Areas, and Physical Challenge. This group of R.O.P.E. areas will be referred to as the Demonstrations.

Like the other R.O.P.E. areas, the Demonstrations must be presented to the R.O.P.E. committee.* The chief difference is that evidence of mastery rests primarily upon the oral presentation -- although additional evidence is more than acceptable.

In the Demonstrations, R.O.P.E. candidates will be expected to:

1. define the area in question.
2. indicate evidence of personal mastery.
3. discuss relevant issues and questions pertaining to the area.
4. explain the importance of the area.

Most R.O.P.E. committees accept the use of notes for the Demonstration. In addition, the presentations may be supplemented by other materials -- e.g., samples of work, summaries of course and evaluations, Demonstrations of skills, etc. The individual's approach to the Demonstrations has considerable potential for originality, creativity, and individuality.

* The actual Physical Challenge Demonstration is supervised by the P. E. instructor, not the R.O.P.E. committee.

THE MATHEMATICS DEMONSTRATION

Mathematics is a District competency area reflected by a seal of endorsement on the diploma. This Demonstration should be prepared very carefully.

The importance and uses of mathematics should be obvious to a R.O.P.E. senior. High school graduates, minimally, should be able to demonstrate mastery of basic math operations: addition, subtraction, long division, multiplication, fractions, decimals, percentages, basic geometry, etc. Graduates should also exhibit reasonable basic understanding of the metric system and recognize the growing importance of metric measurements in the United States.

These skills may be demonstrated by a combination of course evaluations, standardized test scores (e.g., CTBS), tests and worksheets, etc. Additionally, sample problems are often assigned by the R.O.P.E. committee during the presentation.

It is a good idea, even for advanced math students, to review basic math operations before this presentation.

Beyond basic operations, some R.O.P.E. committees ask students to show evidence of math skills up to the level of their most advanced progress in math classes. It is important for the R.O.P.E. candidate to check with his/her committee beforehand on that particular committee's expectations.

- Are math problem-solving skills important other than dealing with numbers? How?
- What is meant by an average? A mean? A median?
- 57.6 - 221.534 = __________
- What is the area of a square where one side is 7 inches?
- a + b = c   b + d = c   d + a = __________
- 16% of 98 = __________
- How many meters are there in a kilometer?
- What are some of the everyday uses of mathematics?

THE AMERICAN GOVERNMENT DEMONSTRATION

Knowledge of American Government is a prerequisite of basic citizenship: those who disregard this knowledge tend to become the victims of government by letting others control their lives. American Government is a District competency area, but it is especially significant at Walden III because self-government and self-reliance embody Walden's spirit of alternative education.

It is essential that a high school graduate should know certain "basics" about the government of his/her society. Included in the government Demonstration should be:

1. the purpose of government and politics.
2. the individual's relationship to government.
3. American political institutions and their functions.
4. the basic ideas behind the American system of government.
5. advantages and disadvantages of the American political system.
6. some knowledge of current issues in American government at the national, state, and local levels. Discussion of at least one current issue from the media related to each level of government will be expected in the Demonstration.

This Demonstration is intended to showcase the R.O.P.E. student's understanding of the political process. Notes, newspaper articles, and other supporting materials will generally be accepted by the R.O.P.E. committee for this Demonstration.

Again, it is a good idea to review this area before making the actual presentation. A passing evaluation is required for endorsement on the diploma. Packets of review materials are available from the R.O.P.E. instructor or the American Government teacher.

THE AMERICAN GOVERNMENT DEMONSTRATION - continued

- Can you define "politics"?
- Evaluate the statement: "All politicians are crooked."
- What are the advantages and disadvantages of "democracy"?
- How does government benefit you?
- What is the interpretive function of the judicial branch of government?
- Do you know the names of your major elected officials?
- What is the importance (purpose) of a constitution?
- Do you see changes that could or should be made in U. S. Government?

PERSONAL PROFICIENCY DEMONSTRATION

Two sub-areas are considered under personal proficiency: EVERYDAY LIVING SKILLS and INDIVIDUAL PROFICIENCY. The objective of this area is to demonstrate the life-skills acquired by the student in the course of his/her education, and, also, to afford an opportunity to showcase special strengths, skills, or talents possessed by the R.O.P.E. student. This Demonstration, like the others, is presented orally together with any supplementary materials selected by the student.

EVERYDAY LIVING SKILLS - Home and school, essentially, are what can be called "protected environment." To function in the "outside world," some skills and knowledge are critical. The Demonstration in this area should identify and discuss the strengths and weaknesses of the R.O.P.E. student in skills needed for everday life. Some but not all of these skills would include:

Personal Economics
Nutrition
Health and Physical Conditioning
Emergencies
Automotive Knowledge
Manual Skills, etc.
(See GLOSSARY)

R.O.P.E. students will be expected to give specific examples of skills in these and other general categories and to discuss the importance (function) of these skills.

INDIVIDUAL PROFICIENCY - Self-knowledge is based upon understanding individual personal strengths and weaknesses. R.O.P.E. students should already be familiar with this concept from the self-assessment section of the autobiography.

In this Demonstration, any and all of the individual's personal strengths, skills, and talents are emphasized. The actual Demonstration may take a number of forms:

PERSONAL PROFICIENCY DEMONSTRATION - continued

-- description of the skill.

-- Demonstration of the skill or talent.

-- showing an example of the final product of the skill or talent.

Together with showing or describing their strong point(s), students should also be able to disucss the requirements of mastery in their particular area or areas. Discussion of skills, in general terms, should also include comment on how these or other skills relate to possible career plans.

- Can you make a list of skills needed by an independent human being to survive in American society?
- How important is a special skill or talent to an individual? Why is mastery important?
- What goes into actually getting a first apartment?
- If a recipe calls for an egg white, which part of the egg does that mean?
- Can you make a list of skills you need to perfect? In general? To achieve a personal goal or goals?
- What skills do you need for a possible career plan?

WORLD GEORGRAPHY DEMONSTRATION

Geography is a basic key to understanding what has been called Spaceship Earth. Knowledge of geography prepares the individual for living in the world, and also serves as a starting point, a first step towards advanced knowledge and understanding.

The geography Demonstration must be presented by the student. Generally, R.O.P.E. committee will not accept a "presentation" where a student simply appears and expects to be questioned. A good Demonstration of knowledge in geography should include:

1. the divisions of geography as a science.
2. the forms and use of globes and maps.
3. major landforms and landform types.
4. location of major physical and political features and boundaries in the U. S. and the World.
5. distribution patterns for population and plants and animals in the world.

As in other areas of R.O.P.E., understanding of the significance and importance of information is expected in this demonstration. It is not enough merely to memorize and recite bare facts.

- What is meant by the term "Spaceship Earth"? Why is it significant?
- If you were shipwrecked in the middle of the ocean, yet knew where you were, how would you describe your location to would-be rescuers?
- Is Greenland a continent?
- What is the relationship of geology to geography? Cartography? Demography? Meteorology?
- What is the difference between climate and weather?
- Can you list personal uses for geography?

THE PHYSICAL CHALLENGE DEMONSTRATION

Research has shown that by the time most students reach high school their physical education is necessarily remedial. At Walden III, however, staff and students are committed to what is called holistic education: the idea that learning should involve the whole person, mentally and physically.

For this reason, an important part of every senior's R.O.P.E. is Walden's Physical Challenge. This Demonstration is presented through a check-off system administered by the P. E. instructor.

Physical Challenge consists of a modified version of the President's Physical Fitness Test.* The test is given to seniors at the beginning of the year, at the end of second quarter, and during fourth quarter.

The first two steps allow R.O.P.E. candidates together with the P. E. instructor to evaluate their physical fitness and set goals for improvement. During the fourth quarter, the final administering of the test evaluates what progress has been made. An evaluation, which is based on individual progress, is communicated at that time to the individual's R.O.P.E. committee.

* Modifications, exceptions, exemptions, etc., are arranged by review of individual cases by the P. E. instructor, the R.O.P.E. committee, and the school principal.

THE ENGLISH COMPETENCY AREA

English, and especially English writing, is to be found throughout R.O.P.E. The Portfolio and Project, in particular, serve as showcases for the student's mastery of written communication. English, like Math, Government, and Reading, is one of the District competency areas reflected by a seal of endorsement on the diploma.

Criteria for evaluating this area involve the basic writing skills: conventions of spelling, grammar, punctuation, paragraphing, etc.; the ability to organize and clearly communicate information; and the ability to accurately answer questions and explain ideas. R.O.P.E. students, therefore, should devote special care to these areas as their overall writing will be expected to reflect the standards of a high school graduate.

Generally, the R.O.P.E. committee will evaluate this area at the end of the presentations. The precise form of the actual presentation will vary from committee to committee, so the student is advised to learn the expectations of his/her individual committee. Most committees, however, do welcome supplementary evidence of competency such as standardized test scores, samples of writing, etc. Some committees, the student should be aware, may ask questions on grammar points or the basics of writing.

R.O.P.E. GLOSSARY

The following explanations are not intended to be comprehensive definitions. They are starting points for further investigation on the part of the R.O.P.E. student. Information in parentheses indicates additional lines of inquiry.

AESTHETICS - The study of aesthetics is concerned with value questions regarding taste in the perception of beauty. Aesthetics is mostly concerned with the arts but not limited to that area. Aesthetic judgment refers to individual standards for the appreciation of beauty. Students should be aware of the distinction between individual opinion and expert opinion in this area. (Philosophy text; art or music instructor.)

CULTURE - This is a concept that is basic to history, sociology, anthropology and philosophy. Culture is usually defined as the pattern of behavior, beliefs, traditions, customs, social institutions, and values that a group of people share together. History, multicultural awareness, and geography are all areas where it is important to understand the meaning of this concept. (Sociology or anthropology text; social studies instructor.)

ETHICAL CODE - A system of standards for judging the rightness or wrongness of human behavior. The word system implies a logical interrelationship of ethical values, and also, less obviously, an order of priorities in judging questions of ethics. Consequently, the ethical code should be based on an understanding of personal priorities that apply to questions of ethical value judgment. (See ETHICS).

ETHICS - "Ethics" can have two meanings or uses: 1) the study of questions of value regarding rightness or wrongness in human behavior; 2) personal standards ("a person's ethics") for judging right and wrong. Some important concepts necessary to an understanding of ethics include:

right	moral	the Golden Rule
wrong	morality	utilitarianism
good	universal	humanism
evil	means vs. ends	

(philosophy text; teacher(s); parent or family member; religious advisor)

EVERYDAY LIVING SKILLS - Practical skills for day-to-day survival by an adult in today's world might include:

The Graduation Portfolio at Central Park East Secondary School

Excerpted from Central Park East Secondary School (1992). *CPESS Graduation Handbook*. New York: Author, New York City Public Schools.

For more information on the Graduation Portfolio at Central Park East Secondary School, contact:

Deborah Meier
Central Park East Secondary School
1573 Madison Avenue
New York, NY 10029

The Graduation Portfolio at Central Park East Secondary School

GRADUATION REQUIREMENTS

In order to receive a diploma the student's Graduation Committee must attest to the fact that all of the following requirements have been met.

(1) An appropriate program of courses, seminars, independent study and internships has been completed during Division II and the Senior Institute that will meet the needs of their post-grad plan.

(2) The necessary NY State RCTs or their equivalent have been passed, and the student has demonstrated basic college entry-level skill in reading, writing and math.

(3) At least seven "major" Portfolio areas have been presented for a full Graduation Committee review and defense, and found at least satisfactory.

(4) All 14 Portfolio areas have been completed and accepted by the student's Graduation Committee.

(5) The Computing and Technology Expectations (see Appendix) have been met in the course of the regular Portfolios.

(6) A final Senior Project has been satisfactorily completed.

THE 14 PORTFOLIO AREAS: An Overview

The primary responsibility of the Senior Institute student is to complete the fourteen Portfolio requirements listed below.

These Portfolios reflect cumulative knowledge and skill in each area as well as the specific CPESS habits of mind and work. Students will present the work in all 14 Portfolio areas to their Graduation Committee for review and acceptance. They will meet for a full review on their seven "majors", to present, discuss and defend their work. There are therefore two stages to keep in mind - preparation of the Portfolio materials in collaboration with their Advisor and others, and then presentation and defense. In some cases Portfolio work will need to be expanded, modified and re-presented for final approval. Students may also choose to present work a second time to earn a higher assessment.

It is important to remember that a majority of the work done in connection with a Portfolio can and should be the outcome of the courses, seminars, internships and independent study that a student has engaged in during the normal course of his/her Senior Institute years. In addition, some of the material may be an outgrowth of work initiated in Divisions I or II, or where appropriate even work completed prior to entering the Senior Institute.

Portfolios include work in fourteen areas: seven "majors" and seven "others." There is no one way to complete these requirements, nor one way to present them. Just as individuals are different, the individual Portfolios will reflect these differences. A Portfolio is a term covering all the ways in which a student exhibits his/her knowledge, understanding and skill.

For example, work completed to meet one requirement can be used to fulfill other requirements as well. CPESS recommends intradisciplinary studies wherever possible. While the final review will be based on individual accomplishment, almost all Portfolio requirements can be based on work done in collaboration with others as well as group presentations. Such collaborative work is encouraged, since it often enables a student to engage in a much more complex and interesting project.

Quality and depth of understanding, the good use of CPESS" five "habits of mind", and the capacity to present convincing evidence of mastery as relevant to each particular field are the major criteria used by the Committee. However, Portfolio work must reflect a concern for both substance and style. For example, written work must be submitted in clear, grammatical English that reflects the expected proficiency level of a high school graduate re spelling, grammatical errors and legibility. Errors should be eliminated before the Portfolio is presented to the Committee. (Written work must generally be submitted in typewritten form, for example.) The same care in preparation and presentation applies to all other forms of work. Portfolio work should represent a student's best effort. The same holds true for the manner of presentation.

Different characteristics are more or less relevant to each Portfolio area. Each academic discipline, for example, has developed its own "scoring grid" to help students and Graduation Committee members focus objectively on the appropriate criteria. Over time the criteria for acceptable performance will be more fully developed - both through the creation of more such "grids" as well as through the compilation of past student work that demonstrates accepted levels of skill. Students are expected to become familiar with the criteria by which they are measured, both the scoring grids and former student work.

The following are the 14 Portfolio areas:

1. Post Graduate Plan:

2. Science/Technology*

3. Mathematics*

4. History*

5. Literature*

6. Autobiography

7. School and Community Service and Internship

8. Ethics and Societal Issues

9. Fine Arts/Aesthetics

10. Practical Skills & Knowledge

11. Media

12. Geography

13. Language Other Than English

14. Physical Challenge

Senior Project: One of the above Portfolio topics or items will be separately assessed as a final Senior project.

Each student is required to make a major presentation in seven of the 14 areas described above. These include the four starred Portfolios, and at least 3 others chosen in cooperation with his/her Advisor. Grades of Distinguished, SatPlus, Sat or MinSat will be used to grade work presented as part of the Portfolio, as well as for the Portfolio area as a whole. In the seven "minor" Portfolio areas, a student may choose a pass/fail grade. Permission to do so, however, must be arrived at in consultation with his/her Advisor.

The FOURTEEN IN DETAIL

The depth and breadth of work required for each Portfolio area depends, in part, on whether it is being judged as "major" or "minor" area of concentration.

1. POST GRADUATION PLAN

Each student must develop a plan that describes the student's current purpose for earning a diploma. A diploma is a tool. We can become life-long learners without a diploma, but failure to get a diploma has other serious consequences that student's need to confront. The purpose may be long-range e.g. "I need a diploma so that eventually I can...", as well as short-range e.g. "I need a diploma so I can get into X college..." Reflecting on purposes helps to set goals. Such practical goals include assessing the kind of grades, SAT scores, and courses that the particular schools of the student's choice will require. Different colleges have different requirements for foreign languages. Some want evidence of high scores in math or an art portfolio. Financial constraints need to be considered at this time too, with an eye toward exploring scholarships. If the student views the diploma as an entry ticket to a particular job training or vocational program, or to a particular civil service exam he/she should also consider how the SI can contribute to this objective.

This plan gives direction to all subsequent work by the student and should therefore be continually up-dated. Over time students need to consider their post high school living arrangements, organize visits to colleges, collect references, etc. The Post Graduate Plan should be the first and the last requirement assessed by the student's Graduation Committee.

2. SCIENCE & TECHNOLOGY

Students must:

a. Produce a summary of work completed during high school in the area of science, plus any related areas of technology.

b. Demonstrate basic familiarity with terminology, issues and procedures, assessed by a short-term quiz devised by the faculty, the RCT, or an equivalent standardized science instrument.

c. Demonstrate knowledge of science as a method, which includes a written report and/or demonstration of the use of scientific methodology in a particular field. (Previous demonstrations of such expertise may be accepted if properly documented and attested.)

d. Awareness of the use of science in the modern world Students may meet this requirement by presenting written work, visual exhibits, debates, etc. that demonstrate awareness of the social costs and benefits that accompany scientific developments.

As in other areas, but particularly in this, students are expected to be familiar with the ways in which modern technology impacts upon science and other fields of work and study.

3. MATHEMATICS

This area will require evidence in two categories: "basic skills" and "higher order mathematical thinking."

A. Students shall present an overview of their past work in mathematics.

B. Basic Skills: computation and manipulation

Students must present evidence of meeting all State proficiency exams in basic arithmetic and mathematics, and, in addition, the faculty will devise an instrument to demonstrate the student's ability to meet the minimum requirements of NYC colleges, and to handle basic daily arithmetic tasks.

C. Higher Order Thinking

Students are asked to demonstrate competence in (1) and either (2) or (3).

1. Political/Civic/Consumer Mathematics. Mathematics serves a variety of daily political and civic functions requiring considerable mathematical sophistication: e.g. in terms of interpreting social statistics, assessment and evaluation data, polling and sampling reports, spatial design and architectural blueprints, etc.

2. Scientific Mathematics. Mathematics plays a critical role as a language and a tool in many scientific areas. Students may choose to examine ways in which science and mathematics intersect and present a specific scientific question that involves mathematical applications.

3. "Pure" Mathematics. Mathematics can also be an area of intellectual "play" that has no necessary "practical" or "applied" context. Students may select such a mathematical topic to explore and present.

4. LITERATURE

The following two-part requirement involves demonstrating general familiarity and exposure to a wide range of literature and the ability to reflect, discuss and write about a particular piece or body of work.

a. Each student is expected to prepare a list of "texts" they have read and are familiar with - novels, poetry, drama, nonfiction, etc. The list should reflect both personal interest and taste as well as breadth and familiarity with various important genres of literature that belong to our "common heritage." Students are expected to be able to discuss and refer to these in conversations with their Graduation Committee.

b. Students are required to submit samples of their written work about an individual book, a particular author, or group of authors or books. This essay, or set of essays, should demonstrate literary reflectiveness and the capacity to communicate effectively in written form. Alternate nonprint forms of presentation can also be submitted (dramas, video).

5. HISTORY

There are two parts to this requirement:

a. Overview of Historical Knowledge

Students should prepare an overview of the areas of history they have studied in secondary school as well as a time-line of major significant events, and persons. Students must also demonstrate knowledge of basic terminology and data, primarily in U.S. history, by passing a faculty-designed test or the NY State RCT, or other equivalent exams.

b. In-depth understanding of the work of the historian and of the uses and abuses of history

Students should present work they have done on particular historical problems, issues or events. Regardless of whether the final products are written essays, speeches, videos, dramas, or debates a bibliography must be presented. The student must demonstrate through this work his/her capacity to (1) do research using primary as well as secondary sources, (2) compare conflicting views, (3) weigh evidence, (4) see connections between events and between events, periods of history, regions, etc (4) speculate on other possibilities and (5) discuss the importance of particular events, people or outcomes to current concerns. (CPESS 5 Habits of Mind) In relation to the last, students should be able to relate their work to ways in which history is used or abused in contemporary discussions and debates.

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6. AUTOBIOGRAPHY

The autobiography requirement consists of two parts - one is a requirement for all students, the second only for those selecting this as a major. All students are required to create an outline (including a time line and family tree) of the key events, people and relationships in their lives - a back-up for a resume and for reflecting upon his/her life. This needs to include self-expertise on the student's own academic background, past school records, etc. In addition, if this area is chosen as a student's major, he/she must prepare a project that examines aspects of his/her life: family history, friendships, special achievements and interests, opinions and beliefs. It should concentrate upon those people or events that have influenced his/her development - major turning points.

Just as each student is unique, so will each autobiographical project vary. There is no single standard or pattern. Students may choose to present their autobiography in a story form, a diary, an essay, art work, photos, an autobiographical drama, or through video or music, or any combination of these. The assignment purposely is aimed at assessing both reflectiveness and creativity.

7. SCHOOL & COMMUNITY SERVICE AND INTERNSHIP

The work for this portfolio is based on work students have been engaged in since 7th grade: community service, internships, part-time employment.

a. All students must present a formal resume of their past work, summaries of prior community service and employment experiences, and relevant letters of reference, in a manner appropriate for future use - with names of organizations, supervisors, time spent, evaluations, and evidence of completion of a seminar or tutorial on work-related issues.

b. Students selecting this as a major must also prepare a major project or a range of minor ones - essays, oral presentations, videos, samples of work - in such a manner that the committee can assess whether the student has used these experiences to grow in competence and intellectual understanding both as a worker and citizen. Workplace problems and issues should be addressed in the material presented.

8. ETHICS AND SOCIETAL ISSUES

Students are expected to demonstrate the capacity to examine and reason about personal or social issues that involve weighing moral consequences and dilemmas. All students will be expected to respond to a selected societal/ethical issue in a manner that demonstrates their ability to see multiple viewpoints, to step into the shoes of others, to ground their opinion in real events, to present credible evidence for their arguments, and to weigh conflicting moral claims. Habits of mind will be the criteria for judgement.

Students selecting this area as a major will be expected to also prepare a larger project: a debate, a video, a social action project, or an essay that addresses a contemporary social/moral issue. It might involve examining a film or novel that raises important moral issues, discussing or debating a set of "op ed" articles posing conflicting views, or writing a series of such pieces. It might also involve participation in a social action project.

9. FINE ARTS AND AESTHETICS

This requirement is concerned with both creative expression and creative appreciation. Students are asked to offer evidence of talent or experience in an expressive art, as well as knowledge and understanding about issues relevant to one of the fine arts. Appropriate areas include the various visual arts, music, drama, literature or dance. The manner of evidence can include an art exhibit or show, a recital, a public reading or a collection of original works. While all students must show some evidence of "hands-on" experience in an area of art (regardless of their degree of proficiency), students who choose this as one of their seven majors, must also present an in-depth familiarity with a particular area of art or artist as well, and an in-depth evidence of hands-on experiences. The insistence on hands-on experience in some form of artistic expression is based on our belief that we learn from the struggle to use various media even when we are unsuccessful.

10. MASS MEDIA

This Portfolio area involves both addressing specific societal and ethical issues pertaining to mass media, and knowledge of alternative forms of media. (It can often be combined with #8 above.) All students will be expected to present evidence - past essays, projects, debates, exhibition presentations (the actual material or attestations regarding them) - that address ways in which the media impact on issues of race, gender and/or class. They are expected to discuss these, and to feel comfortable comparing at least two forms of media.

Students who select this as a major must produce a substantial piece of work for a larger public audience: a video presentation, a newspaper, an exhibit, and a relevant bibliography of articles in the field.

11. PRACTICAL SKILLS AND KNOWLEDGE

Included under this category are a wide-range of everyday skills important to functioning in and contributing to society. The list below includes some of the areas in which a student is expected to show evidence of a working knowledge in a wide variety of ways, including attestation.

* Modern "appliances": eg. automobile license
* Health and Medical care: emergency measures, insurance, AIDS awareness, nutrition, mental illness, etc.
* Independent Living: eg. apartment hunting, maintaining finances, budgeting, credit and taxes.
* Legal Rights: tenant rights, your rights re police, selective service, freedom of speech, etc.
* Transportation: alternatives, costs, benefits and disadvantages
* Employment: job applications, interviews, ads, salary issues, appearance, eligibility, etc.
* Citizenship: voter registration, electoral process, and more.

* Computers and Technology: basic terminology, keyboard skills, basic "how-to"s re computers, plus other modern technologies. (See Computing Expectation Appendix and Science and Technology Portfolio.)
* Drug and substance abuse: nature, danger and sources of help.
* Sex and family care: contraception, sexually transmitted diseases, pregnancy, care of infants, loving, family care & abuse.
* Relationships: marriage, friendships, parenthood.

12. GEOGRAPHY

All students are assessed, through a short-answer quiz administered orally or written, in the following three areas:

(a) practical use of maps and globes of various sorts, and ability to recognize major physical characteristics (find, locate, measure);

(b) awareness of different map projects and their implications (compare);

(c) awareness of the role geography plays in our social, economic and political history (some examples).

Students selecting this as a major will engage in a greater in-depth project in one of these areas. Students may demonstrate part or all of their competence in this area through work turned in under other categories (e.g. use of maps in history or science projects, real-life activities).

13. LANGUAGE OTHER THAN ENGLISH/ DUAL LANGUAGE PROFICIENCY

All students must demonstrate minimum competence to work in a language other-than-English and an awareness of the value of a dual language competence.

a. Student must present an outline of their experience both formal and informal with dual language issues (including family background, travel and course work).

b. Students must demonstrate the acquisition of a language other than English - as speakers, listeners, readers and writers. This will normally be met through the NY proficiency exam or an equivalent NY State or College Board examination.

c. Students must pass at least two semesters of language, or their equivalent.

Students selecting this as one of their seven majors must demonstrate advanced competence to read and write in their chosen second language through a project conducted in that language and through passing the foreign language exam on a high level. Students selecting this as a major might alternately choose to learn a third (or fourth) language. In addition they would be expected to discuss critical issues in the field of language development - the connections between language and identity, or other topics approved by their Advisor.

14. PHYSICAL CHALLENGE: Lifetime Fitness Education

This requirement is designed primarily to demonstrate a student's preparation for a healthy lifestyle including appropriate physical fitness. In addition it provides an opportunity for students who have participated in various physically challenging activities to attest to and gain credit for such initiative. Participation in team sports and individual competitive sports as well as noncompetitive physical challenges (climbing, hiking, etc) are accepted. The student should furthermore be able to demonstrate how their past activities will help lead them toward healthy life-time habits. The following three goals should always be kept in mind:

* achieving a functional personal fitness level and maintaining an optimum level of muscular and cardiovascular endurance,

* developing appropriate social skills and attitudes - independence, personal responsibility, interdependence, leadership and sportsmanship

* discovering and appreciating one's physical capabilities and limitations

Assessment is based on:

(a) Documentation of physical activities participated in during the past 4 years and

(b) Demonstration or attestation of proficiency in some particular physical activity with potential for lifetime activity. This can include such activities as bicycling, dance, handball, back-packing, skiing, swimming, and tennis as well as participation in team sports.

A student selecting this as a major must develop a major project in the field of physical education and physiology (an extension of a Science project) and development of a social service program in the field (an extension of community service/internship).

FINAL SENIOR PROJECT

This final Senior project is an extension of one of the activities or projects already approved by the Graduation Committee, or a Portfolio item designed as serving this dual function. It should be in an area in which a student has particular gifts, knowledge and/or interests. It can involve a revision of work presented in a Portfolio or a long-range project that developed from a particular field of interest.

It will be judged both as a regular Portfolio item and, on more rigorous criteria, as a final senior project.

	VIEWPOINT	CONNECTIONS	EVIDENCE	VOICE	CONVENTIONS
EXPECTATIONS	**Encompasses Wide Knowledge Base and Is focused:** • Clearly identifies, addresses key question & idea; • Demonstrates an in-depth understanding of the issues; • Presents position persuasively; • discusses other views when appropriate.	**The Whole Is Greater Than the Sum of the Parts:** • Organized so that all parts support the whole; • Conjectures, predicts and explains observations where appropriate; • Explains significance of problems beyond the project; • Contains useful transitions; • Concludes in a satisfying way.	**Credible & Convincing:** • Generalizations & ideas supported by specific, relevant and accurate information; • Ideas developed in appropriate depth; • Discusses strengths & weaknesses of evidence; • Cites appropriate sources: (graphs, formulas, figures, equations, maps, illustrations) where appropriate.	**Engaging:** • Lively interesting use of language; • Awareness of reader; •Explains concepts so they are understandable to the reader. •Project has a distinct identity.	**Intelligible:** • Excellent appearance; • Correct format:(bibliography, footnotes, references, etc. where applicable); • Varied sentence structure; • Good mechanics & standard notation; • Appropriate, broad vocabulary and word usage.
4	EXCEEDS	EXCEEDS	EXCEEDS	EXCEEDS	EXCEEDS
3	MEETS	MEETS	MEETS	MEETS	MEETS
2	APPROACHES	APPROACHES	APPROACHES	APPROACHES	APPROACHES
1	NEEDS MORE	NEEDS MORE	NEEDS MORE	NEEDS MORE	NEEDS MORE

PORTFOLIO ITEM ____________

TITLE ____________

Student ____________

Advisor ____________

Reader ____________

Score ____________

Date ____________

MMENTS ____________

CPESS – SENIOR INSTITUTE Graduation Committee Oral Presentation

Ratings:		Articulation Categories: •Student gives effective, clear, convincing presentation of the subject. •Concepts are explained to indicate thorough understanding of ideas and their ramifications. •Clarity of expression and credible evidence are offered. •Student shows creativity, style and poise. •Student gives intelligent response to questions.
EXCELLENT presentation	5	Student is very convincing and addresses all categories.
GOOD presentation	4	Student presents material well and articulates all but one or two of the categories.
ACCEPTABLE presentation	3	The presentation needs to be more informed, in one or more areas, although not substantially
APPROACHES acceptable level	2	The presentation may be improved with more attention given to the weaknesses which leave the audience unconvinced.
NEEDS more	1	The student's presentation was generally weak in most areas.
SCORE		

Comments ____________________

____

Date: ____________________

Student: ____________________

Advisor: ____________________

Title of Paper: ____________________

____

Portfolio Item: ____________________

Committee Member: ____________________

Score: ____________________

Procedures

1. Student gives 5 - 7 minute presentation.
2. The Committee questions student.
3. The Student leaves the room.
4. The Committee discusses and rates the oral presentation.
5. The Committee discusses grids.
6. The Student is recalled to begin next presentation.
7. The Committee gives feedback at the end of all presentations.

Vermont's Assessment Program in Writing and Mathematics

Excerpted from Vermont Department of Education (1990-1991). *"This is My Best." The Report of Vermont's Writing Assessment Program*, and *Looking Beyond "The Answer." The Report of Vermont's Mathematics Portfolio Assessment Program*. Montpelier, VT: Author.

For more information on Vermont's Assessment Program, contact:

Richard Mills, Commissioner
Vermont Department of Education
State Office Building
Montpelier, VT 05602

I. Introduction

This report presents the background, methods and results of a project that is, so far, unique in the nation. During the 1990-91 school year, educators from across Vermont joined in an effort to assess how well our students are learning to write, by evaluating portfolios of writing samples that the students, themselves, put together.

Students and teachers from 46 Vermont schools were invited to participate in this pilot year of portfolio assessment. These "sample schools" were randomly selected to represent a demographic cross-section of Vermont — a true statistical sample. In addition, 98 schools that asked to participate became pilot-year "volunteers." Although the work from these schools was not formally assessed

Portfolio assessment draws from and feeds back into classroom work — and it offers a chance to measure directly each student's real performance in writing.

and is not reported here, the volunteer schools were extremely valuable in helping us refine the Vermont Writing Assessment Program, and they received a great deal of experience in return.

In assembling their portfolios, students in grades four and eight chose samples of their best writing from the school year, following category guidelines that are outlined in Section III of this report. Teachers from the sample schools were specially trained to assess the portfolios, measuring each piece against performance standards that were based on writing by Vermont students. Each portfolio was evaluated by two teachers from schools other than the writer's own. Each student also submitted a "Best Piece," which was assessed separately from the portfolio. In addition, all students in the pilot program performed a Uniform Writing Assessment task: During a 90-minute period in the classroom, each student developed, drafted and completed an essay in response to a writing "prompt." All conditions of the uniform assessment, including the prompt, were essentially the same for all writers in both grades.

The Purpose Is to Learn

The goals of this effort are to assess how well our students write, and to improve writing in our schools.

This is a timely experiment. As Vermonters spend an increasing amount of money on education, we want to know how well our dollars are working. We have looked for alternatives to standardized testing, which operates apart from classroom instruction. Portfolio assessment draws from and feeds back into classroom work — and it offers a chance to measure directly each student's real performance in writing, in a way that honors the individual yet is standard and fair in application.

Vermont's education community and the Department of Education plan to broaden the fourth and eighth grade portfolio assessment program, in both writing and mathematics, to all Vermont schools beginning in the 1991-92 school year. With this in mind, the overall aim of this report is to present what has been learned from this pilot year, and to summarize the participants' recommendations for the future.

A Collaborative Design

Vermont's portfolio-based approach to writing assessment has been in continual development since the Writing Assessment Leadership Committee first met in spring 1989. During the pilot year, every teacher participating in the project had opportunities to contribute to its design. In all, the Writing Assessment Leadership Committee, whose members include seven teachers and two representatives of the Vermont Department of Education, received help and advice from more than 500 other Vermont educators, along with a number of educators from across the United States.

Outline of this Report

This report is divided into six sections. The first three introduce and outline the assessment program; the latter three present the assessment results of the pilot year.

This Introduction is followed by *Section II, Why Writing Is Important; the Assessment Criteria.* This sets out our shared values in this field, it introduces the Writing Assessment Program's approach to analyzing and measuring performance, and it shows — using examples drawn from the portfolios — how the assessment criteria relate to the elements of good writing.

Section III, Components of the Portfolio; the Uniform Writing Assessment; Evaluating the Work, describes what was in each student's portfolio. It then outlines the Uniform Writing Assessment process, and summarizes the manner in which all the students' writing was evaluated.

Section IV, Performance on Paper: The Assessment Results, presents in both narrative and graphic form the findings of the pilot year.

During the pilot year, every teacher participating in the project had opportunities to contribute to its design.

Section V, Illuminations: Some Findings of the Questionnaire, relates the most informative and interesting relationships between the results of a questionnaire the students completed, and the findings of the writing assessment.

Finally, *Section VI, Assessing the Assessment,* offers observations and evaluations by the teachers who led working groups in the assessment. Along with reflecting on how the pilot year process worked, this section contains suggestions for the future of the Writing Assessment Program.

Two important components of the writing assessment that are not part of this report will be implemented next year: an evaluation of each school's writing program, and anecdotal observations about the students' writing.

II. Why Writing Is Important; the Assessment Criteria

Why Write?

"It isn't always what you say, it's how you say it," is one way to look at writing instruction. Another is to claim that content is all that matters — let the writer express him/herself and hang grammar and spelling. The plan for Vermont's writing assessment is to engage teachers in a dialogue about these issues, and to emphasize that "writing instruction" is not just the English teacher's job.

When words are used as a mathematician uses numbers, to reach a solution or solve a problem, writing becomes an essential tool in learning, a primary skill. By focusing on students' writing portfolios, Vermont's assessment program has been designed to advance an acceptance of writing as a *tool in learning*, not just as a means of reporting information.

Beyond the K-12 reasons for writing well are the demands of institutions of higher learning, and the needs of our own workplace. Fully half the jobs in this country now demand literacy skills, and advancement in any of these positions is almost inevitably affected by one's ability to communicate on paper.

The commitment of the Vermont teachers who agreed to help design this program was to provide criteria by which students' own work would be assessed, along with a reasonable way to assemble such work in portfolios. In suggesting the minimum contents for student portfolios, the Writing Assessment Leadership Committee made a concerted effort to encourage writing across the curriculum.

The best way to learn to write is to write. Teachers can foster good writing by asking their students to write. These same teachers should write, too. But is it fair to expect teachers whose subject is not English to be writing critics, as well? If they are not comfortable noting technical or stylistic matters, let the non-English teachers review the content of their students' writing, leaving matters of linguistic precision to the English class.

It would be wonderful if the portfolio of a fourth or eighth grade student reflected work from previous years, but no one expects Vermont schools immediately to accommodate this. If writing portfolios are a good idea, an assessment program will be only one small part of what motivates their existence. Such a program will stay in place for its demonstrated value in encouraging dialogue, across the state, on what we value in writing. If that weren't so important, we could say the writing portfolio is "just a passing fad" and be done with it.

But it's more than that. Even with computers helping us to reduce spelling and grammatical errors, we haven't yet found a better tool than just plain writing to give us, and others, such extensive access to our thoughts and feelings. The best way to learn writing is to write — and that's the only way to make a writing portfolio

What Do the Criteria Mean, and How Were They Selected?

We all have our own idea of what good writing is. Vermont's Writing Assessment Program proposed to look at five important dimensions of writing:

— **"Purpose,"**
— **"Organization,"**
— **"Details,"**
— **"Voice/Tone," and**
— **"Usage/Mechanics/Grammar."**

A five-part system such as this makes possible an analytic view of each student's abilities as a writer, while discouraging assessments as simplistic as "good" or "bad." When students look at their writing with these five dimensions in mind, they may come to recognize their own strengths as writers, and the areas where their writing needs improvement. For a full presentation of the values assigned to each performance level in each dimension, please review the *Analytic Assessment Guide* that is included in this section.

Refining the Criteria

During the program's 18 months of preliminary design sessions, the Writing Assessment Leadership Committee considered dozens of criteria that it finally eliminated as vague or impractical. "Sentence variety" was among these suggestions, eventually dropped in the belief that it is encompassed by "Organization" and "Voice/Tone." "Clarity" might serve as a criterion, but like "good writing," clarity has many components — so Purpose and Organization were nominated as criteria that might encompass clarity.

The Writing Assessment Leadership Committee continued its work, in close contact with pilot school teachers throughout the

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year, to refine and clarify these components of good writing. For example, at the start of the pilot year, one of the questions proposed as a criterion for the program was: "Is the organization suitable to the writer's purpose?" In reviewing samples of student writing, pilot year teachers found themselves unsure whether they were looking for evidence of satisfactory organization, or for clarity of purpose. "This is a double-barreled criterion!" one teacher exclaimed. "I suggest we limit each of these evaluative questions to one component of writing." The Committee took that advice to heart and revised the list of criteria.

No one claims that the five dimensions now used in the program are all there is to good writing. "Originality," "Thoughtfulness," and "Penmanship" are among several criteria that the Writing Assessment Leadership Committee chose not to address. The five criteria now in place represent an attempt to define important skills that students *can* develop, not capacities that are either superficial or a measure of "talent."

Considerable discussion might be given to which of the five criteria are most important. Can a writer ignore any one or two of these criteria, and still produce credible writing? A piece that is poorly organized, for instance, may still communicate with a strong sense of purpose or contain a commendable level or detail

By suggesting five criteria for Vermont's writing assessment the Writing Committee hopes to emphasize that these are some parts, perhaps the major components, of what goes into a successful piece of writing. The Committee also hopes that teachers and students will recognize that, even when a piece is assessed low in any of these dimensions, it may well have strengths in other aspects of its composition.

The Levels of Performance

The Writing Committee worked hard to develop language that would represent a reasonable range of student achievement without seeming excessively value-laden. A student whose writing is assessed as "rarely" well-organized, for instance, may feel more positive about that than if his/her writing were found "unacceptable" in organization. And so the levels of performance — "**Rarely**," "**Sometimes**," "**Frequently**," and "**Extensively**" — are expressed as indicators of frequency rather than ratings of quality.

Benchmarks: The Starting Points

To work toward a fair and consistent assessment of each student's writing, a collection of **benchmarks** — pieces of student writing that are judged as exemplars for each level of performance, in each category — was assembled for both grade four and grade eight, and provided as part of each teacher/assessor's training. Copies of these benchmark collections are included in the front and back cover-pockets of this report.

The benchmarks were chosen in April 1991, during a two-day process that involved committees of 10 teachers from each grade, and approximately 1,400 student portfolios. The teachers tagged, distributed, discussed and finally selected benchmarks whose performance levels were carefully, repeatedly discussed.

Each of the following five pages uses examples drawn from the benchmark collections, to help illustrate how the five dimensions for assessment were applied.

Purpose

The Writing Assessment Leadership Committee defined Purpose as "the degree to which the piece establishes and maintains a clear purpose; demonstrates an awareness of audience and task; exhibits clarity of ideas." A piece of writing (or a portfolio) that rarely exhibits strength of purpose, "lacks clarity of ideas; demonstrates minimal awareness of audience and task; does not establish a clear purpose."

Here is a piece of writing by a fourth grade student that was chosen as a "Rarely" benchmark in the Purpose category:

> **When My Dad Went to the Hostapil**
>
> the date was Dec. 8, 1990 I HATED!! Michelyne, Dannielle and I stayed at the Camp's house over night. It was O.K. Michelyne cooked dinner (don't tell this but it was gross!!) otherwise it was good!! On the other hand dad was on his way to the hostapil, it took 2 hours to get there.

In assessing the purpose of this piece, the reader determines which of the Purpose descriptors most closely matches it. Because "When My Dad Went to the Hospital" lacks clarity of ideas, demonstrates a minimal awareness of audience and task, and fails to establish a clear purpose, it has been assessed as "Rarely" in Purpose. At the same time, someone assessing this piece might notice that the Usage/Mechanics/Grammar, although far from perfect, are in the "Sometimes-Frequently" range for a fourth grade student, especially given the proper use of an apostrophe to indicate a possessive noun, and the correct use of commas in series.

Writing that falls into the "Extensively" range in Purpose "exhibits ideas that are developed in depth; demonstrates a clear understanding of audience and task, and establishes and maintains a clear purpose." Here is a poem, written by an eighth grade student, that the Benchmarking Committee nominated as a strong example of writing with extensive purpose:

> **The Drifter**
>
> He walks down the lonely street
> Hunger building in his stomach
> Something shines beneath the dirt
> He bends down
> Reaches for it, A quarter
> He drops it into his pocket
> Squats down in his home
> On the street
> He sleeps
> Awaken by sirens
> He stands up
> Runs
> Far away
> finds another town
> Anothers lonely street
> his new home.

Assessing the Usage/Mechanics/Grammar of this piece might be a tricky exercise, producing discrepant results among readers. Discussion will continue on how to assess poetry using the program's five dimensions, and whether matters of Usage/Mechanics/Grammar in poetry rely on the author's consistency or on established conventions.

Organization

Organization is "the degree to which the writing illustrates unity and coherence." A piece that rarely exhibits this quality may "have skeletal organization with brevity; lack introduction and/or conclusion; have thought patterns that are difficult, if not impossible, to follow; exhibit serious errors in organization."

The following piece by an eighth grade student was assessed as a "Rarely" in Organization. But as poorly organized as the writing is, the reader will have a hard time ignoring the strong sense of expression, or "Voice/Tone," that emerges.

> **Dream Come True**
>
> The Hike, oh what a wonderful thing, Sore Feet, Sore legs, Sore Back, Blisters, mud & Nature. Being in the Nature brings the man out in me, I Feel like I should have an axe in one hand and a beer in the other. Man, I can't write about this horrible stuff. The only time I have axe in my hand is in my Nightmares. The truth is, I wish I had a Guitar in one hand and a concert ticket in the other. On the way up that stupid mountain I was wishing I had played sick so I wouldn't have had to come on this trip, Than at the top it was wonderful, Oh don't get me wrong, I still hate the woods because it's dirty, smelly and disgusting.
>
> So on the top I was alone, by myself, when along skips Amy (a little blond girl) just to say Hi. Then it happened OH Dear GOD it happened All the girls in my class, all around me Was it my charm or my beauty or my skillfulness on my guitar. At the time I didn't care for I was in 7th heaven. But now I wonder why the came over Well I'm just glad it happen

Assessing this piece across all five dimensions of the program, we might determine that, while it is, indeed, a "Rarely" in Organization, it is a "Sometimes" in Purpose because it "exhibits rudimentary development of ideas; demonstrates some awareness of audience and task; and attempts to establish a purpose." For Detail, the piece might be assessed as a "Frequently" because "details are elaborated and appropriate" — and for Voice/Tone, a reader might judge the piece an "Extensively" ("tone enhances personal expression; distinctive voice evident"). For Usage/Mechanics/Grammar, the assessment would likely be "Sometimes," because "multiple errors and/or patterns of errors are evident."

Details

Detail is "the degree to which the details are appropriate for the writer's purpose and support the main point(s) of the writing." Here are two short essays by eighth grade students, the first assessed as a "Rarely" in Detail ("details are random, inappropriate, or barely apparent"), the second assessed a "Sometimes" ("details lack elaboration or are repetitious"):

War In the Gulf

I think the war in the gulf was the only choice possible. Saddam Hussein's actions lead me to believe that he wasn't going to stop with Kuwait, but all the other Arab Nations were in danger.

The Attic

As I walked in the attic. It smells like it's all dusty and has been abandoned for years. The sight is like a very foggy night. The furniture is coverd up with white sheets. I looked out the window, and I saw the back yard, and a big tree with birds in it. When I walked across the floor it crackled.

When I touched the wall, it was warm and stuffy

"The Attic" has prompted considerable debate. Isn't it better described by the phrase assigned to a "Frequently" in Detail: "details are elaborated and appropriate"? Yet the Benchmarking Committee held fast to its judgment, adding that the details in "The Attic" seem gratuitous, as if the piece were a response to an assignment that challenged students to involve all five senses in a short piece of writing. Any one of the details is commendable, but their cumulative effect is repetitious.

Voice/Tone

Voice/Tone is "the degree to which the writer's response reflects personal investment and expression." Members of the Benchmarking Committee had difficulty finding a strong sense of voice in research papers, and in other writing that is in the third person. "I Know Kids Should Pick Their Own Bedtimes" is an essay by a fourth grade student that was assessed as a "Frequently" in Voice/Tone because "the tone is appropriate for the writer's purpose," and there is "evidence of voice" in the piece.

I Know Kids Should Pick Their Own Bedtimes

I know kids should pick their own bedtimes. WHY? Because I am a kid. We know how much sleep we need. We know how much time it will take to get our homework done. Besides that it is not fair because your parents get to watch T.V. T.V. is sometimes learning. And if you are not tired you just lay in bed and do nothing when you could be reading. And if you have a younger sister or brother they should go to bed earlier than you should. I know kids should pick their own bedtimes. By the age of 8 we are old enough to make all our own decisions.

Compare this piece with the following excerpt from an eighth grader's research paper that was judged a "Rarely" in Voice/Tone ("tone absent or inappropriate for writer's purpose; little or no voice evident"):

Booker T. Washington

Booker T. Washington was born April 5, 1856, in franklin county, Va. His mother, Jane Burroughs, was a plantation cook. His father was an unknown whiteman. When Booker was only a child, he swept yards and brought water to the slaves working in the fields. When he was freed by the civil war, he went with his mother to Malden, West Virginia, to join Washington Ferguson, whom she had married during the war. Also, Booker T. Washington had two brothers, John and James, and a sister, Amanda.

Although "Booker T. Washington" is well-organized and grammatically sound, the author seems to have paraphrased information from a published text, making little effort to put a sense of life or enthusiasm into the words. Just the facts, nothing but the facts, most of them expressed in simple, declarative sentences!

Usage/Mechanics/Grammar

Usage/Mechanics/Grammar is "the degree to which the writer's response exhibits correct: usage (tense formation, agreement, word choice); mechanics (spelling, capitalization, punctuation); grammar; sentences — as appropriate to the piece and grade level." For the purpose of Vermont's writing assessment, the Writing Committee decided that a single type of error, repeated throughout a piece of writing or occurring extensively in the portfolio, should not be sufficient reason for a "Rarely," in which "errors are frequent and severe."

Here is a piece by an eighth grade student that has been selected as a "Rarely" in Usage/Mechanics/Grammar:

Vermont

The thing I love about Vermont is the summers sunny warm summers. THE AIR IS FREASH I love the birds when I hike the veiws are great even when you are skiing I love Vermont True its boring but still there is so many places to explore the woods are endless Camping and biking are awsome there is so many things to do in Vermont the only thing when walking through the feilds watch for meadow muffins farming is neat I love to sugar this state has so much to ofer but people just dont see it Vermont has every thing to ofer it is awsome you walk for five minuts and you are in the middei of nowhere the animals in Vermont is great because were ever you are there are animals right there

Here is an excerpt from "The Pelicans," written by an eighth grade student and assessed as a "Sometimes" in Usage/Mechanics/Grammar because "multiple errors and/or patterns of errors are evident":

The Pelicans

The sun was up as I looked out the window to see a squardren of pelicans on their usual patrol. They crused just above the surface of the water as the leader pealed of and the others falowed one by one in perfect precistion. It was butifull to se them fly. They were costum aircraft built perfectly for their purpose. They were made for catching fish and manuvering precisely

The leader led them in a strait line up, and at the top of his climbe dove strait into the water. The others followed and the result was a bombardment of pelicans plunging strait into the water. The whole thing looked like a well-reheresed ack being preformed by masters of the theater.

Subjectivity: A Final Word

When the sample school teachers began preparing to assess the Best Pieces and Portfolios, the benchmark pieces served as a starting point for coming to agreement on a common standard. At that stage, substantial debate arose over the assessments given to two or three benchmark pieces. But as long as these pieces are seen as a starting point for focusing on the criteria — as long as they are used to foster a discussion of the standards by which we assess student writing — minor disagreements over their "rating" are healthy.

No matter the words we use, no matter the criteria by which we assess writing, no matter how skillfully our teachers review the work in question, this is a human endeavor and one that involves judgments. One of our goals, as this program evolves, is to reduce the possibility that one teacher's response will differ substantially from those of other teachers.

Vermont Writing Assessment

Analytic Assessment Guide

	Purpose	Organization	Details	Voice/Tone	Usage, Mechanics Grammar
In Assessing, Consider...	the degree to which the writer's response • establishes and maintains a clear purpose • demonstrates an awareness of audience and task • exhibits clarity of ideas	the degree to which the writer's response illustrates • unity • coherence	the degree to which the details are appropriate for the writer's purpose and support the main point(s) of the writer's response	the degree to which the writer's response reflects personal investment and expression	the degree to which the writer's response exhibits correct • usage (e.g., tense formation, agreement, word choice) • mechanics —spelling, capitalization, punctuation • grammar • sentences as appropriate to the piece and grade level
Extensively	• Establishes and maintains a clear purpose • Demonstrates a clear understanding of audience and task • Exhibits ideas that are developed in depth	• Organized from beginning to end • Logical progression of ideas • Clear focus • Fluent, cohesive	• Details are effective, vivid, explicit, and/or pertinent	• Distinctive voice evident • Tone enhances personal expression	• Few, if any, errors are evident relative to length and complexity
Frequently	• Establishes a purpose • Demonstrates an awareness of audience and task • Develops ideas, but they may be limited in depth	• Organized but may have minor lapses in unity or coherence	• Details are elaborated and appropriate	• Evidence of voice • Tone appropriate for writer's purpose	• Some errors are present
Sometimes	• Attempts to establish a purpose • Demonstrates some awareness of audience and task • Exhibits rudimentary development of ideas	• Inconsistencies in unity and/or coherence • Poor transitions • Shift in point of view	• Details lack elaboration or are repetitious	• Evidence of beginning sense of voice • Some evidence of appropriate tone	• Multiple error and/or patterns of errors are evident
Rarely	• Does not establish a clear purpose • Demonstrates minimal awareness of audience and task • Lacks clarity of ideas	• Serious errors in organization • Thought patterns difficult, if not impossible, to follow • Lacks introduction and/or conclusion • Skeletal organization with brevity	• Details are random, inappropriate, or barely apparent	• Little or no voice evident • Tone absent or inappropriate for writer's purpose	• Errors are frequent and severe
	Non-Scorable (NS) • is illegible i.e., includes so many undecipherable words that no sense can be made of the response, — or — • is incoherent, i.e., words are legible but syntax is so garbled that response makes no sense. — or — • is a blank paper				

II. Problem Solving and Communication: The Criteria

The best pieces of student work provide the basis for assessing the problem solving and mathematical communication skills of Vermont students. This section provides a description of these two elements and the seven criteria by which these are measured.

Problem Solving Skills
- **PS1. Understanding of the Task**
- **PS2. Selection of Approaches/Procedures/Strategies**
- **PS3. Use of Reflection, Justification, Analysis, Verification in Problem Solving**
- **PS4. Findings, Conclusions, Observations, Connections, Generalizations**

Mathematical Communication Skills
- **MC1. Language of Mathematics**
- **MC2. Mathematical Representations**
- **MC3. Clarity of Presentation**

A. Problem Solving: The Essential Skill

The National Council of Teachers of Mathematics' **Agenda for Action** (1980) recommended that problem solving be the focus of school mathematics. Revisiting that recommendation, the *Curriculum and Evaluation Standards for School Mathematics* place becoming a mathematical problem solver at the top of the list of goals for students:

> *The development of each student's ability to solve problems is essential if he or she is to be a productive citizen... To develop such abilities, students need to work on problems that may take hours, days, even weeks to solve. Although some may be relatively simple exercises to be accomplished independently, others should involve small groups or an entire class working cooperatively. Some problems also should be open-ended with no right answer, and others need to be formulated*

This goal is the foundation upon which Vermont has built its assessment program. Mathematics programs should be reducing emphases on the traditional one-or two-step problems that are categorized into traditional types, and moving toward a broader definition of problem solving. Problems should have a variety of structures. They should include the types of problems that students encounter every day. Application problems should play a major role in the curriculum. Some problems should be open-ended. Problem solving should include investigations and long-term projects. Teaching problem-solving strategies must be an integral part of instruction, and must be reflected in the process.

The NCTM Standards encourage a variety of problem solving opportunities. The problem-solving assessment standard states:

> *"If problem solving is to be the focus of school mathematics, it must also be the focus of assessment. Students' ability to solve problems develops over time as a result of extended instruction, opportunities to solve many kinds of problems, and encounters with real world situations.*
>
> *Assessments should determine students' ability to perform all aspects of problem solving. Evidence about their ability to ask questions, use given information, and make conjectures is essential to determine if they can formulate problems. Assessments also should yield evidence on students' use of strategies and problem-solving techniques and on their ability to verify and interpret results. Finally, because the power of mathematics is derived, in part, from its generalizability (e.g., a two-space solution can be generalized to a three-space solution), this aspect of problem solving should be assessed as well."*

Vermont's commitment to providing meaningful problem-solving activities for its students was the basis for development of the problem-solving criteria.

Vermont's Problem-Solving Criteria

Too often problem solving has been taught as a linear process with four distinct steps: begin by restating the problem, identify a strategy, solve the problem, check your answer. This mechanistic approach survived for years as the way to teach students how to approach word problems. Vermont's concept of problem solving extends far beyond the simplistic approach to solving word problems, and is meant to assist students in developing meaningful approaches for the range of types of problems they will encounter in their lives.

Vermont educators also recognize that problem solving is not necessarily a linear process. Problems can have multiple solutions or multiple ways of obtaining a solution. Recognizing that students have different knowledge bases and varied learning styles suggests

Vermont's concept of problem solving extends far beyond the simplistic approach to solving word problems.

that it is inappropriate to adopt a singular approach to problem solving and endorse that as the only approach valued by the state. The development of a range of problem-solving strategies (e.g. trial and error, listing, application of algorithms, visual representations) and a repertoire of problem-solving skills (e.g., reflection, analysis, verification) are the goals of mathematics education in Vermont. The problem-solving criteria adopted by Vermont reflect these goals.

Elements of problem solving are heavily integrated, and it is difficult to separate out distinct aspects. Nevertheless, Vermont's assessment must provide meaningful feedback to programs. To meet that goal Vermont isolated the following four key criteria for the problem solving abilities of students:

Problem Solving Criteria
- **Understanding of the task.**
- **How the student approached the task; the approach(es), procedure(s) and/or strategies adopted to attack the task.**
- **Why the student made the choices along the way; the reflection, justification, analysis, rationale, verification that influenced decisions.**
- **What findings, conclusions, observations, connections, generalizations the student reached.**

Although these criteria may suggest a sequence of activities, that is not necessarily the case. Portfolio entries have ranged from very simple problem-solving tasks to very complex multiple-week investigations. More complex problems offer opportunities to reach conclusions at various points through the problem-solving process. Similarly, a student may not begin with a full understanding of the problem, but through application of a strategy or futile attempts at verification, he/she may come to a fuller understanding of the task. The criteria serve as categories for classification of evidence — evidence that can be found throughout a student's solution to a piece, not necessarily at a particular place within the response, not as "parts" of a solution. A brief explanation of each of the criteria follows.

Understanding of the Task

It may go without saying that a student needs to understand what is being asked of him or her. In order to solve a problem you must understand the task. Understanding can include appreciating relevant information, being able to interpret the problem, and asking key questions that push for clarification. This criterion is a measure of the *receptive* communication skills of the student.

The rating scale for Understanding of the Task is:

1. Totally misunderstood
2. Partially understood
3. Understood
4. Generalized, applied, or extended.

At the lowest level, the student is not able to understand what is being asked. A blank response or a response that is not responsive to the task, or a clear misinterpretation of the task, are indicative of total misunderstanding. At the next level, the student might understand part of what is being asked or respond to one portion of the problem, while missing other key sections or critical information.

A level three response suggests that the student understood the task. Comprehension might be exhibited through a detailed description or analysis of the problem, or simply with a complete and correct response that reflects an understanding of the problem. The highest level of this scale suggests that the student stopped and analyzed the problem statement at the outset, and looked for special cases, missing information, or particular concerns, assumptions, etc., that might influence the approach to the problem.

It is important to note that understanding the task does not require a restatement of the problem. In fact, restating the problem in one's own words may not provide any evidence of understanding of the task. The understanding can emerge throughout the student's solution to the problem: Explanation of the task, the reasonableness of the approach, and the correctness of the response all provide evidence of a student's understanding of the task.

Quality of Approaches/Procedures/Strategies

Most problems have multiple ways in which they can be solved. Over time, students develop a repertoire of approaches, procedures, or strategies to solve problems. Strategies can include simple guessing, guessing and checking, systematic listing, using some form of manipulative, using Venn diagrams, using grids to record possible combinations, using formulas, and applying algorithms. There should not be just one way to solve a problem. Math teachers now recognize that it is more important to teach students multiple approaches to problem solving, and to let them choose methods that work for them.

Although many different ways should be valued, selection of a strategy that can lead to an answer remains a goal. Students who select "guess and check" as a strategy for a problem that will take years to solve in that way should be able to evaluate the strategy and recognize that it is not viable, and they should select another approach.

The rating scale for Quality of Approaches is:

1. Inappropriate or unworkable approach or procedure
2. Appropriate approach/procedure some of the time
3. Workable approach
4. Efficient or sophisticated approach or procedure.

At the first level, the student has chosen an approach or procedure that will not lead to a solution for the task. The second level allows for the complexity of some tasks which will call on students to complete multiple tasks within the exercise. In the event that the approach or procedure is workable for some of the task, but not all, then the response is a level 2.

If the approach or procedure is viable and can lead to a solution, the piece is rated at a level 3. There are many routes to a solution, and each of these is treated as an equally acceptable strategy for this criterion. The most common approaches, as well as other, seemingly more cumbersome or inefficient responses, earn a rating of 3. There will be times when students provide very sophisticated strategies to solve a problem.

We believe we must work toward increasing the attention students give to the process, as opposed to "the answer."

When rating a piece for the approach or procedure we tend to look at the demonstration, the description of approach, and the actual student products of drafts, scratch paper, and other artifacts of the problem-solving process. Problem solving cannot be "right answer" focused; the key to effective problem solving lies in the strategies one uses to attack the problem and the skills one uses to reflect on the process, to check one's work, and to verify one's decisions. In order to communicate the importance of the process, this criterion, which we sometimes refer to as the "how" of problem solving, emphasizes the approach and the viability of the strategies adopted by the student.

We recognize that students do not always record the procedures they follow, and we believe we must work toward increasing the attention students give to *the process*, as opposed to "the answer." We need to ask students "what are you doing?" and have them describe the process in precise terms. The importance of process in problem solving suggests that process is the answer to many of these tasks. It is also important to note that students do not always label their strategies (nor should they, necessarily), and raters must try to follow and label the student's approach based on the record of work that students keep. It falls to professional judgment to infer what the student adopted as an approach.

Why the Student Made the Choices Along the Way

Problem solving is more than understanding the task and selecting a viable strategy. Good problem solvers are constantly checking their assumptions, reflecting on decisions, analyzing the effectiveness of strategies, checking for exceptions, and verifying results in other ways. These skills provide an overlay for the problem-solving process. They may be the most difficult to teach, and they are clearly the most difficult to record — but they are critical to good problem solving.

These decision-making skills occur throughout a piece. They can affect selection of strategy, rejection of strategy, selection of focus, reflection on whether or not progress is being made, verification of steps, consideration of options, and other decision making. Whenever a student makes a conscious decision based on analysis, reflection, or verification, he/she is justifying the decisions or choices made along the way in the process.

Finding the *why* that underlies decisions is very difficult. Students rarely document and explicate their decision making. Statements in portfolios like "I realized this process would not work" or "I knew there was a quicker way," or "This has to be a solid approach because," or "I thought I was right but realized I was wrong because..." all provide evidence of the metacognitive skills associated with problem solving.

The rating scale for why the students made the choices along the way reflects the difficulty in capturing the evidence for this criterion. Students are getting better at explaining **how** they solve a problem, the approach they followed to solve the problem, and the steps along the way. Getting them to think about why they proceeded they way they did, and to communicate this process orally or in writing, is a bigger challenge. The rating scale for this criterion is:

1. No evidence of reasoned decision making
2. Reasoned decision making possible
3. Reasoned decision making/adjustments inferred with certainty
4. Reasoned decision making/adjustments shown/explicated.

The scale is dependent on the rater's ability to combine professional judgment with inference. The extremes of this scale are evident. At the bottom is the student who attempts the problem without ever making informed decisions. He/She simply does the problem, attacking it in a seemingly random fashion and never reflecting on options or decisions, evaluating alternatives, verifying decisions, or thinking about the selections made throughout the process. Absence of any evidence of informed decision making leads to a level 1 rating. At the other end of the scale, a student clearly articulates the decisions made, either through explanation or example.

The issue is not what did you find, it's so what does that mean?

In between, it is often difficult to determine whether or not the student has engaged in reasoned decision making. A student seems to begin with one approach and then switches to another approach. Did he/she make the change because he/she recognized the first approach wouldn't work, or did he/she tire in one approach and decide to try another? A student seems to reach an acceptable response, but then begins to solve the problem another way. Is he/she verifying the answer, or does he/she believe the first approach was wrong?

In each of these examples it is possible that the student is thinking about the process, reflecting on his/her problem solving, and making adjustments when necessary. It is also possible that he/she is not! The student's actual product often provides guidance to a rater as to which of the two options is most likely correct. If the product shows a pattern that teachers have seen through years of teaching — for example, begin with random listing and then switch to a more systematic guess and check — it is likely that reasoned decision making occurred. However, an attempt to infer decision making that could lead several teachers to different conclusions suggests that although reasoned decision making may have occurred, it is equally likely that it didn't. When you can infer decision making with some level of certainty the response is a level 3; if it may have occurred but is equally likely that it didn't, then the response is a level 2.

The third criterion is clearly the most difficult to capture. It may also be the most important component of problem solving. We are not accustomed to stopping the creative process of problem solving to examine what kinds of decisions we are making, and why we make them. It is uncommon, too, for people to document the process. However, it is important that students be able to analyze their own decision-making skills and, particularly in group problem-solving situations, to be able to share the decisions and justifications with other group members, so other students can not only follow the process but also critique, evaluate the reasonableness of the decision, suggest alternatives, and make other metacognitive analyses. The challenge associated with this criterion is how to capture the process without interrupting the problem solving. It is important to note that students do not have to document the decision-making process in every piece of work, but they should be able to do so, and the documentation should be reflected in their best pieces.

What Decisions, Findings, Conclusions, Observations, Connections, and Generalizations the Student Reached

A goal of problem solving is to reach a solution, but getting an answer is less important than making connections or extending the solution. Mathematics is no longer about finding the answer to an exercise that is an artificial problem existing primarily for the purpose of testing problem-solving skills. The issue is not what did you find; it's *so what* does that mean?

Tasks should provide students with an opportunity to extend beyond their solution. Students should be encouraged to make observations about their conclusions, or to make connections to other mathematical concepts, to real world applications, or to other disciplines. This criterion requires students to ask *so what* at the completion of each problem.

The rating scale for the criterion is:

1. Solution without extensions
2. Solution with observation
3. Solution with connections or application
4. Solution with synthesis, generalization, or abstraction.

A level 1 response requires a solution. Correctness of the solution is not an issue. As students improve in their performance on the first three criteria, the likelihood of incorrect responses will be diminished. The bottom of this scale suggests that the student the problem and stops. Any attempt to question what the solution means, or to make an observation about the solution, leads to a rating of 2.

If the student goes beyond a simple observation and makes connections to other mathematics, to other disciplines, or to other possible applications, then the rating is a 3. In some instances a task will provide an opportunity for a student to synthesize information, or to come to some generalization or level of abstraction based on the observations made throughout the problem. In these instances the work is a level 4.

Applying the Four Problem Solving Criteria: Some Examples

The four criteria that comprise the Problem Solving section of the portfolio isolate distinct elements of the problem-solving process on which student progress can be measured. The distinctions among the four are not perfect, as one expects with any defined constructs. However, they provide a basis for examining student's problem-solving skills and reporting on the progress of mathematical programs. Good problem solving will require integration of the knowledge bases and skills typified by these criteria. An examination of examples of student work will help to further explicate the criteria, and illustrate how they are related.

The examples that follow were taken from the 1990-1991 pilot. An eighth grader included a chocolate-bar problem (see example P-1) as part of her portfolio.

Her approach to the problem and the solution provide clear evidence that she understood the problem. The strategy she adopted was to work backwards from the six remaining pieces, doubling the amount to find out how large the candy bar was before the second person ate part of it. This strategy is a good approach. Then she added four pieces to account for the one-fourth eaten by the first person. This is not a viable approach. Her rating for how she approached the task indicates an appropriate approach or procedure some of the time. In terms of reasoned decision making throughout the problem, she provides reasons for many of her actions (e.g., the second person ate half of the 12 to get 6 pieces) and verifies her response. The reasoned decision making is, for the most part, shown or explicated. She finds a solution to the problem, and even though she made a mistake, the answer is correct. However there are no observations or extension.

P1

The Problem

A Chocolate bar is separated into several equal pieces. If one person eats 1/4 of the pieces and a second person eats 1/2 of the remaining pieces there are six pieces left over. Into how many pieces was the original bar divided?

Strategy

To find the answer to this problem you most multiply six by two and add four to your answer.

6 ← # Of pieces left
x 2
12 ← The second person ate half of 12 to get 6 pieces.

12
+ 4
16 ← The first person ate a forth of the # so you add 4 to get 16.

The answer 16 is correct because if you take 1/4 of 16, (4), and subtract that from 16 you get 12. Then if you subtract half of 12 you get 6.

16
− 4 # of pieces first person ate
12

12
− 6 # of pieces second person ate
6 # of pieces left

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III. Components of the Portfolio; the Uniform Writing Assessment; Evaluating the Work

For the purpose of this assessment program, a writing portfolio is a folder containing written pieces chosen, dated and assembled by the student, in several categories. With guidance from the classroom teacher, each fourth and eighth grade student put together a portfolio that included:

1. A Table of Contents.

2. A "Best Piece." This is the piece that the student feels represents his or her best work as a writer. It may come from any class, and it may or may not address an academic subject. Each Best Piece was assessed separately from the portfolio, but using the same criteria. The Best Piece was made part of the assessment in the expectation that it would help depict what students value in their own writing, that the process of its choosing would encourage students to reflect on their work, and that the evaluation of this piece would be especially helpful to the student writer. The Best Piece assessments also indicate the range of "best work" that is being written at these levels.

3. A Letter. Written by the student to the reviewers, this explains the choice of the Best Piece, and the process of its composition.

4. A poem, short story, play or personal narration.

5. A personal response to a cultural, media or sports exhibit or event; or to a book, current issue, math problem or scientific phenomenon.

6. Fourth Grade: A prose piece from any curriculum area that is not English or Language Arts. **Eighth grade: Three prose pieces** from any curriculum areas that are not English or Language Arts.

The portfolio components were designed to ensure that the writing came from *across the school curriculum*, and across types of writing. This reflects an overall aim of the program: that the writing stimulated by portfolio assessment will enhance learning in all phases of the curriculum, in all grades of all our schools.

Writing to a 'Prompt'

The Uniform Writing Assessment offered each student a chance to display his/her writing skills under a universally standard condition.

The portfolio components were designed to ensure that the writing came from across the school curriculum, and across types of writing. This reflects an overall aim of the program...

In a classroom, students in both grades were given 90 minutes to develop, draft and polish an essay that responded to the same prompt, or writing challenge:

"Most people have strong feelings about something that happened to them in the past. Think about a time when you felt happy, scared, surprised, or proud.

"Tell about this time so that the reader will understand what happened, who was involved, how the experience made you feel, and why it was important to you."

Several, optional "Prewriting Suggestions" were offered as questions, such as, "Where did this experience take place?" "How did this experience make you feel?" Students were given as much scrap paper as they needed, and were encouraged to map, outline or organize their essay in any way they wished. Use of a dictionary and thesaurus was encouraged.

The task, then, was to compose a rough draft, apply to it the several "Editing Suggestions" that were also provided (samples: "Have I chosen the best words to express my ideas?" "Are my sentences clear and complete?"), and then write a final draft for submission at the end of the 90 minutes.

When the assessments were farther than one level apart, the two teachers negotiated what the final assessment rating should be.

Evaluating the Work

To assess the portfolios, teachers from grades four and eight in the sample schools spent two days working together in May. After being introduced to the writing benchmarks and trained in assessment, the teachers were assigned to tables where stacks of portfolios and Best Pieces awaited their evaluation.

Each portfolio and Best Piece was assessed by two teachers. When both teachers assigned the same performance level in a given category, that became the assessment. When two adjacent levels — such as "Sometimes" and "Frequently" — were assigned, an assessment between those two levels was recorded (see Section IV). When the assessments were farther than one level apart, the two teachers discussed their ratings, often in the presence of the table leader, before deciding what the final assessment rating should be.

The prompted Uniform Writing pieces were evaluated by the Department of Education's consultant in this project, Advanced Systems in Measurement and Evaluation of Dover, New Hampshire. With assistance from Vermont teachers who had assessed portfolios and Best Pieces, the consultant's professional readers applied the same standards that were used for the portfolio assessment.

Vermont Uniform Writing Assessment

Directions

You will have 90 minutes to work on a paper that tells about an experience you had in the past. Read the writing task in the box below and then think about the prewriting suggestions.

Writing Task

Most people have strong feelings about something that happened to them in the past. Think about a time when you felt happy, scared, surprised, or proud.

Tell about this time so that the reader will understand what happened, who was involved, how the experience made you feel, and why it was important to you.

Prewriting Suggestions

1. Think about some of the times when you felt happy, scared, surprised, or proud.
2. Which one of these times do you have the **strongest** feeling about?
3. When did this experience take place?
4. Where did this experience take place?
5. Who were some of the people involved?
6. How did this experience make you feel?
7. Think about specific details that show why this experience was important. Remember to include enough details so that the reader can share your feelings with you.

You may use this information as part of your rough draft to assist you in mapping, outlining, or organizing in any other way. If you need extra paper for your rough draft, raise your hand and your teacher will provide it for you. You may use a dictionary or thesaurus while you are working on your rough draft and your final draft of this paper.

The Emphasis of the Portfolio Assessment

NCTM's Mathematical Power Standard calls for assessing students' mathematical knowledge in ways that will yield information about their:

> *...ability to apply their knowledge to solve problems within mathematics and in other disciplines; ability to use mathematical language to communicate ideas; ability to reason and analyze. knowledge and understanding of concepts and procedures. disposition toward mathematics; understanding of the nature of mathematics; and integration of these aspects of mathematical knowledge.*

Integrating the NCTM guidelines with their own experience working with performance assessment in their classrooms, the committee members recommended that the Vermont Assessment focus on five critical elements of mathematics instruction:

- Problem Solving
- Communication
- Instructional Opportunities
- Mathematical Concepts
- Disposition Towards Mathematics/Empowerment

Assessing the status of mathematics education in Vermont with respect to these five elements, it is necessary to view programs through three different "lenses." The assessment is composed of three components:

- Best Pieces of Student Work
- Whole Portfolios
- Uniform Assessment

Problem-solving ability and *communication skills* are best assessed at the individual student level through the best pieces found in student portfolios. A sampling of students' work from throughout the state — such as the pilot year program collected — will provide information on how Vermont students perform with respect to the criteria associated with these elements.

On a different level, it is important to capture the range of *instructional opportunities* provided as part of the mathematics programs. Within this element we include integration of technology, interdisciplinary work, individual and group work, the use of manipulatives, and real world applications into the instructional program. Although the best pieces in portfolios provide an indication of these elements, the selection of best pieces narrows the focus and thereby limits the picture of the entire program, potentially eliminating some examples. A sampling of entire portfolios — work selected as best pieces and other work from throughout the year — from a class provides the kind of snapshot necessary to capture the types and range of opportunities provided within the mathematical programs. A review of a sample of portfolios from a given class will also provide a sense of *content representativeness* within the program. Evidence of student empowerment will also be captured through this component

Finally, the state is interested in capturing a picture of the levels of knowledge and understanding of concepts and procedures appropriate to key grade levels. This requires a fixed lens — Uniform Assessment — for all students across the state

In summary, the Vermont Assessment Program will develop three distinct profiles that contribute to the overall picture of mathematics education in the state. **Best Pieces** within portfolios will be used to assess the problem-solving abilities, communication skills, and dispositions of students. **Portfolios** of student work will provide a picture of the instructional context and the content representativeness of programs. A **Uniform Test** will be administered to gauge the knowledge and understanding of concepts and procedures, and to link to national comparative data. The report presents a detailed description of each of the first two components, the criteria that comprise the assessment and the results of the pilot year. The uniform test will be administered for the first time next year.

The chart that follows provides a summary of the three components, their elements, the associated criteria and the scales that will be used for rating. Descriptions of the elements, criteria, and levels of performance are provided in Sections II and III.

Overview of Vermont Mathematics Assessment Program

Component	Element	Criteria	Scale
Best Pieces of Student Work selected by a student from his/her portfolio	Problem Solving	PS1. Understanding of the Task PS2. Selection of Approaches/Procedures/Strategies PS3. Use of Reflection, Justification, Analysis, Verification in Problem Solving PS4. Findings, Conclusions, Observations, Connections, Generalizations	Four-point scale for each criterion
	Mathematical Communication	MC1. Language of Mathematics MC2. Mathematical Representations MC3. Clarity of Presentation	Four-point scale for each criterion
Whole Portfolios as illustrations of mathematics programs	Instructional Opportunities	Evidence of inclusion of Group Work, Interdisciplinary Work, Manipulatives, Real World Applications, and Technololgy	Included or not included in the program
	Content Areas	Number Sense — Whole No./Fractions, Number Relationships/Number Theory, Operations/ Place Value, Estimation, Patterns/Functions/Relation ships, Algebra, Geometry/Spatial Sense, Measurement, Statistics/Probability	Relative emphasis of content areas within the program
	Empowerment	Curiosity, flexibility, risk-taking, perserverance, reflection, motivation, valuing math, confidence.	Annecdotal information
Uniform Assessment	Concepts and Procedures	To be determined	To be determined

Assessment Requirements for Course Work Folders in English

CGSE
United Kingdom

For more information on Course Work Folders in English, contact:

Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

Assessment Requirements for Course Work Folders in English (for the CGSE in the United Kingdom)

Assessment Requirements

1. Each candidate sits for one prompted writing, and submits a folder with eight pieces of the candidates work.

2. The prompted writing involves listening to a taped talk and responding to both its form and content (student listens twice and also receives transcript; one and a half hours total).

3. The eight pieces of student writing should include:

a. **Two** pieces under controlled conditions showing the candidates ability to understand what he or she has read. The tasks must test factual, inferential and evaluative understanding of the passages read.

b. **One** piece of personal, descriptive or narrative writing, of at least 400 words, and one piece of argumentative or informative writing.

c. **Two** pieces showing the candidate's response to reading during the course. Evidence of the reading of one whole work of literature must be provided by at least one piece of work. (Instructions stress that the texts chosen should meet certain standards).

d. The **remainder** of the folder may contain further examples of the above but may also be used to illustrate the candidate's other strengths, such as writing poems, plays, etc.

4. The scoring is done regionally, using a 40-point scale.

The Portfolio Process in the "Motion" Program at The International High School

New York City Public Schools
Long Island City, New York

For more information on the "Motion" Program, contact:

Eric Nadelstern or David Hirschy
The International High School
LaGuardia Community College
3110 Thompson Avenue
Long Island City, NY 11101

The "Motion" Program at The International High School Long Island City, New York

The International High School (IHS), located on the campus of LaGuardia Community College in Long Island City, New York, serves 450 students, all of whom are immigrants and classified as limited-English proficient. IHS is committed to providing students with a rigorous intellectual instructional program that simultaneously enables them to become proficient and fluent users of the English language. To this end, IHS structures students' learning so that language skills are taught in context and embedded in content areas. Classes are organized heterogeneously, and students work collaboratively in groups to provide them with continuous opportunities to learn from one another.

IHS organizes itself into self-contained, interdisciplinary, thematic clusters, one of which is the "Motion" Program. The "Motion" Program combines, literature, math/physics, and Project Adventure, a course modeled on Outward Bound but designed for the indoors. For the duration of one trimester, the 75 students enrolled in Motion spend all of their time each day with the four Motion teachers who teach only them and are responsible for their total educational needs.

The Portfolio Process in the "Motion" Program at The International High School

The Portfolio Process

Assessment in the Motion Program is based on a portfolio of work developed by each student, with a strong self-evaluation component, feedback and evaluation by peers, and finally teacher feedback. The final grade is arrived at in conference with the student, two peers, and instructors. The process of how the portfolio is developed, read, and evaluated is critical to its success.

The portfolio includes a personal statement, a mastery statement, a selection of what the student feels is his/her best work, and a self-evaluation. Two other students then read the portfolio and write approximately one page of reactions to the student in which they evaluate his/her classwork, the portfolio, and recommend a final mark. Two instructors read the portfolio, write reactions, and recommend marks. Students in the program developed the guidelines for assigning marks.

The final conference lasts from five to eight minutes and concludes in assigning marks. It is a time for the student to reflect on his/her progress, for students to acknowledge areas of strength, and recommend directions for change. Teachers have input and serve as a final check on the process. These conferences are often powerful catalysts for change. The order of evaluating and commenting during the conference is self, peer, teacher, and then self.

The collaborative nature of the class activities provides multiple contacts with language, ideas, skills, and the content in the classroom. The portfolio expands these contacts by students having students select their best work, writing the personal statement, the mastery statement, reading, and reacting to their peers' work.

In a collaborative group, self-assessment happens naturally and very early. Students read the materials individually and with others while they do activities. As they check with each other and share ideas, self-assessment has already started.

Given the extremely heterogeneous nature of students and groups in the classroom, students are encouraged to develop their personal goals and standards. They are encouraged to write and to communicate in their individual ways about the activity in progress. As students work with each other and with teachers, variety is expected and revision is a normal part of the process. When activities are completed, students communicate their mastery to an instructor or to other students in order to receive credit. At this point they may have to revise or expand their work.

In the personal statement, students are encouraged to think about their progress as an individual within a group context. *Competition and comparison*

with others are minimized as students develop internal standards as well as class standards.

Through the mastery statement, students develop higher cognitive skills such as recontextualizing, synthesizing, and abstracting. Although students may work on the portfolio together, their statements are valued as individual work. In this classroom environment, copying or using another's words is a strong taboo. Individuality, variety, and clarity of expression are valued.

The cumulative effect of the process is that students recognize the need for assessment to check and validate their progress. In this relatively public environment, students and teachers support each other in their individual growth. This is in contrast to the trauma and isolation often associated with traditional testing procedures

One student put it this way: "When I take a test, I study, I remember until the test, and then I forget it. When I do the portfolio, it is really mine, and I have it for a long time." *Daria K.*

As educators, we have been led to trust testing because of its simplicity and its apparent fairness. While it may be simple, it is often not fair. Further it can be counterproductive in our efforts to produce self-motivated, confident learners able to use the resources around them in a pluralistic environment.

Traditional Testing

The following are some of the reasons we have abandoned testing as a means of assessment in The Motion Program.

Testing does not usually measure creativity or multiple approaches in problem solving.

Testing often ignores process.

Testing usually emphasizes breadth of coverage rather than in-depth cognitive achievement.

Testing often measures the language environment of the student rather than his/her learning. It may be dependent on how well the parents speak, the level of scholarship in the present or previous school, the number of years in an English-speaking environment, etc.

Standardized testing is a flawed measurement tool or predictor of success for the non-traditional student.

Testing is a segregating device. It is often used to track students.

Testing creates an artificial environment. It does not model the real world in which people's successes often depend on their ability to use the people and resources around them.

Testing is time bound. It does not allow students to pace themselves naturally in their work. This may be critical for the non-traditional and limited English proficient students.

Testing in the classroom usually does not measure individual growth, nor does it measure growth of the whole person.

The Portfolio Process

In contrast, the portfolio process serves to encourage:

longer retention;

higher level cognitive skills;

development of internal standards and self-reliance;

ability to use a wide range of resources;

creativity and variety in problem-solving approaches;

social skills; and,

a language-rich environment.

The portfolio process enables students to develop the linguistic, cognitive, and cultural skills necessary for success in high school, college, and beyond.

Results

The students tell us how they are doing. They come to class. They often work for extended periods, up to two and one-half hours, without a break. They pass their classes. In the past year and one-half, over 150 students have enrolled in The Motion Program, and each one has passed all of the four classes.

The portfolio process is not the only critical element in the program's success, but it plays a major role. Here are some student comments on the portfolio.

"The portfolio is a very helpful task which helps students to learn more things, and at the same time shows the things that students have already learned. It also helps to evaluate the work students have done during a long period of time in a fair way. The portfolio is fair because it reflects everything the student achieves and lets them express their own ideas and thoughts. It gives students a freedom of thinking and learning."

Katherine O.

"The portfolio is good because in discussing with others, writing, revising, it helps you accumulate the past lessons and activities in your mind. Even now after finishing Motion almost a year ago I still remember the things I learned. It is better than tests. When I take tests, it doesn't stay in your mind.

"Asking students to evaluate their work first is a little hard. When I first started, I wasn't sure of myself and the work that I did. I needed a teacher to check it and tell me if it was right. At the end of the class, I had confidence that my work was good after discussing it with other students. I didn't need a teacher to say it was all right.

"I feel proud when other students read and evaluate my work."

Walker N.

"The conferences are a very important part of evaluation.... Usually most students are fair about their grades, and often get the grades which they give themselves. The conferences are a little scary, but it is good. They help you understand your work better and how to improve it."

Maria B.

Documentation of Learning Over Time

Documentation of Learning Over Time

The Descriptive Review of a Child

The Descriptive Review process, developed by Patricia Carini of the Prospect Center, is a formal collaborative reflection by teachers that describes a single child's experiences within the school setting. The Descriptive Review is not an evaluative process but is based on concrete descriptions of the child and his work, including physical presence, disposition, relationships with others, activities and interests, and formal learning. This section contains one teacher's recounting of an actual descriptive review of a child.

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Primary Language Record

Excerpted from Falk, B. and Darling-Hammond, L. (1993). *The Primary Language Record at P.S. 261: How Assessment Transforms Teaching and Learning*. New York: National Center for Restructuring Education, Schools, and Teaching, Teachers College, Columbia University.

For more information about the Primary Language Record, contact:
Centre for Language in Primary Education
Webber Row Teachers' Centre
Webber Row
London SE1 8GW

A Description of The *Primary Language Record*

The *Primary Language Record* (Barrs *et al*, 1988) was conceived in 1985 by educators in England who were searching for a better means of recording children's literacy progress during the elementary school grades. Teachers, school heads, staff developers, and central office representatives developed it together as a way of reflecting and supporting good teaching practices. It is designed to meet the following criteria for good assessment:

- Assessment practices should support and inform day-to-day teaching in the classroom.
- Assessment practices should provide a continuum of knowledge about children as they pass from teacher to teacher.
- Assessment practices should be able to inform administrators and those responsible in the community at large for children's work.
- Assessment practices should provide families with concrete information about children's progress.

The *Primary Language Record* is a vehicle for systematically observing students in various aspects of their literacy development -- reading, writing, speaking, and listening -- using particular classroom events and samples of work as the basis for recording their progress and interests; recommending strategies for addressing needs and building on talents; and discussing ideas and perceptions with the students, their parents, and faculty. By virtue of what teachers are asked to observe, the PLR offers a coherent view of language and literacy development and progress. It is grounded in the philosophy that literacy acquisition proceeds in a manner similar to language acquisition -- through immersion in meaningful and purposeful activities. It recognizes that language and literacy learning take place not in isolation but rather in diverse contexts that span the curriculum. It encourages teachers to identify children's strengths and note growth points, to regard errors as information, and to analyze patterns of error in a constructive way.

In these ways, the PLR reflects an overall shift in thinking about the learning process -- a shift recognizing that good teaching is based on intimate knowledge of the child as well as knowledge of the curriculum and teaching strategies. It also represents a shift in thinking about the purposes and uses of assessment -- a shift acknowledging the importance of documenting growth over time in rich, informative ways; a shift creating congruence among values, goals, instruction, and assessment practices.

Essential Principles

The *Primary Language Record* is designed around the following essential principles:

Parent involvement. The PLR encourages meaningful parent involvement in schools in two important ways. First, it provides for an ongoing exchange of information between teachers and parents about children's language and literacy growth. It offers a fuller and rounder picture of children's progress than is given by any standardized test score. Second, it values the knowledge of parents as their children's first teachers by eliciting and utilizing the information they have about their children in the learning process. In these important ways, ongoing parent/school relationships develop throughout the year.

Respect for family. The PLR values each parent's knowledge about his or her children and respects each family's cultural and linguistic background. It takes special note of home language and offers positive support for gathering information about language and literacy development in languages other than English. By asking parents to reflect and report on their children's literacy behaviors, it enables them to recognize growth, and it further encourages activities that are related to literacy development in the home.

Respect for children. The PLR values children in two important ways. First, it recognizes that children come to school with prior knowledge and experience as language users. It looks at them individually, noting growth over time rather than comparing them with other children. It provides authentic information about children's abilities -- a picture that focuses on and values each child's strengths, what each child *can* do, rather than a picture obtained through the lens of a deficit model. Second, it values children's knowledge about themselves. It provides them with the opportunity to be actively involved in evaluating their progress and planning their own work.

Respect for teacher knowledge and professionalism. The PLR builds on teachers' understandings and enhances their professionalism in several ways. First, it draws out and enriches teachers' knowledge and uses it as the basis for educational decisions. In doing so, it acknowledges teachers -- those closest to the learning situation -- as the best assessors of children's growth and the most knowledgeable decision makers regarding instruction. Second, the flexibility of the PLR framework allows for and respects differences among teachers in much the same way that it does for children. Each teacher is able to decide how to manage the frequency, format, and style of observations. Third, it supports both individual and collaborative teacher reflection and learning -- about children and about teaching practice. The PLR is designed to allow all teachers who teach the child to be involved in compiling a full picture of the child's progress and to ensure that their special insights are incorporated into the child's picture and plan.

Format of the PLR

The structure of the *Primary Language Record* provides a framework in which teachers can observe, document, and reflect on the learning of their students in order to guide their instruction. It is a way of organizing and synthesizing information in order to look at an individual student's growth over time. While it offers a format for recording continuous observations about particular aspects of development and learning, it does not mandate a particular time, schedule, or manner of observing or reporting. Each teacher is free to decide how, when, and where to record information. While the PLR does not demand uniform reporting procedures, it provides a uniform conception of the teaching/learning process through its structure.

The *Primary Language Record* is organized to include the following:

Parent interview. A discussion is held between the teacher and the child's parents or other adult family member(s) and recorded at the beginning of the school year.

Continuous observations about the child as a language user from all teachers who work with that child. In this section, the child's strategies, approaches, and behaviors in the areas of talking, listening, reading, and writing are all noted.

End-of-year comments from the child and his or her parents. Spring conferences are held with the child individually, as well as with the child's family, to elicit comments on their feelings and judgments about the child's work and progress over the year.

Information for the child's teacher for the following year. This section is a final assessment of a child's progress in all aspects of language and literacy learning. It is meant to provide the next year's teacher with up-to-date information about the child's development.

Reading scales. Reading scales are an additional feature of the *Primary Language Record.* They provide yet another means of noting growth and development and are directly informed by the evidence teachers gather through observation and documentation of children's growth during the school year. The scales, which are longitudinal measures that can be used to describe a reader's progress over a period of years, outline the processes involved in becoming a competent and experienced reader. They help teachers think about children's progress across a wide age range by offering some helpful ways of describing what a child is able to do, with increasing ease, on the road to developing as a reader. They can also be used to identify children whose reading development is causing some concern.

One reading scale for younger children charts children's progress as readers on a continuum from *dependence to independence*. Another reading scale, for older children, plots the developing *experience* of readers and looks at the ways in which they broaden and deepen their experience of reading many kinds of texts. Copies of both scales are provided on the pages following the end of this chapter.

In addition to their usefulness in identifying individual children's progress in a shorthand format, these scales can also be used annually to monitor the reading levels of groups of children. Scale scores can be aggregated to indicate the number and proportion of students reading at different levels. Using the scales in this way can enable schools to obtain an overall picture of the reading performance of their students and to consider instructional strategies accordingly.

Research in schools serving more than 4,000 London students has found that the scales are reported useful to teachers and schools in several ways: They help teachers to be better observers of children; they provide a conceptual framework for understanding development; and they enable teachers to identify students' difficulties and strengths. This supports teaching practice by giving teachers information as to the range and variety of materials, books, and experiences they should plan to use.

The scales also provide continuity in understanding and reporting a child's development. They provide a shared view and language for recording student progress among teachers and across grades. They help teachers talk with and report to parents by providing a meaningful vocabulary and framework based on concrete aspects of development (Centre for Language in Primary Education [CLPE], 1990).

Development in Reading and the Reading Scales

Becoming a reader: reading scale 1

DEPENDENCE

Beginner reader 1	Does not have enough successful strategies for tackling print independently. Relies on having another person read the text aloud. May still be unaware that text carries meaning.
Non-fluent reader 2	Tackling known and predictable texts with growing confidence but still needing support with new and unfamiliar ones. Growing ability to predict meanings and developing strategies to check predictions against other cues such as the illustrations and the print itself.
Moderately fluent reader 3	Well-launched on reading but still needing to return to a familiar range of texts. At the same time beginning to explore new kinds of texts independently. Beginning to read silently.
Fluent reader 4	A capable reader who now approaches familiar texts with confidence but still needs support with unfamiliar materials. Beginning to draw inferences from books and stories read independently. Chooses to read silently.
Exceptionally fluent reader 5	An avid and independent reader, who is making choices from a wide range of material. Able to appreciate nuances and subtleties in texts.

INDEPENDENCE

Development in Reading and the Reading Scales

Experience as a reader across the curriculum: reading scale 2

INEXPERIENCED

Inexperienced reader 1	Experience as a reader has been limited. Generally chooses to read very easy and familiar texts where illustrations play an important part. Has difficulty with any unfamiliar material and yet may be able to read own dictated texts confidently. Needs a great deal of support with the reading demands of the classroom. Over-dependent on one strategy when reading aloud; often reads word by word. Rarely chooses to read for pleasure.
Less experienced reader 2	Developing fluency as a reader and reading certain kinds of material with confidence. Usually chooses short books with simple narrative shapes and with illustrations and may read these silently; often re-reads favourite books. Reading for pleasure often includes comics and magazines. Needs help with the reading demands of the classroom and especially with using reference and information books.
Moderately experienced reader 3	A confident reader who feels at home with books. Generally reads silently and is developing stamina as a reader. Is able to read for longer periods and cope with more demanding texts, including children's novels. Willing to reflect on reading and often uses reading in own learning. Selects books independently and can use information books and materials for straightforward reference purposes, but still needs help with unfamiliar material, particularly non-narrative prose.
Experienced reader 4	A self-motivated, confident and experienced reader who may be pursuing particular interests through reading. Capable of tackling some demanding texts and can cope well with the reading of the curriculum. Reads thoughtfully and appreciates shades of meaning. Capable of locating and drawing on a variety of sources in order to research a topic independently.
Exceptionally experienced reader 5	An enthusiastic and reflective reader who has strong established tastes in fiction and/or non-fiction. Enjoys pursuing own reading interests independently. Can handle a wide range and variety of texts, including some adult material. Recognizes that different kinds of texts require different styles of reading. Able to evaluate evidence drawn from a variety of information sources. Is developing critical awareness as a reader.

EXPERIENCED

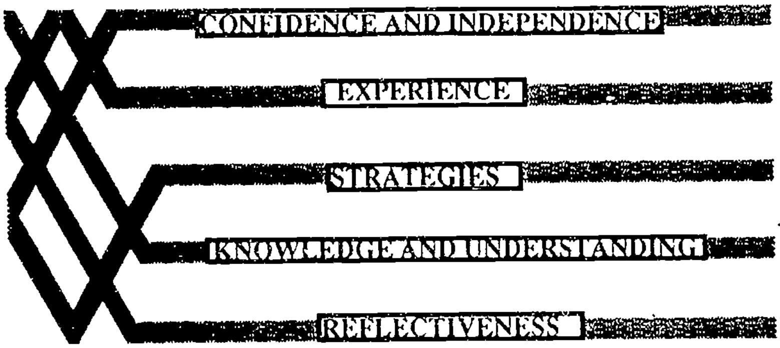
Talking and Listening: Diary of Observations

	SOCIAL CONTEXTS				
LEARNING CONTEXTS	pair	small group	child with adult	small/ large group with adult	
collaborative reading and writing activities					
play, dramatic play, drama and storying					
environmental studies and historical research					
maths and science investigations					
design, construction, craft and arts projects					

California Learning Record

California Department of Education

For more information about the California Learning Record, contact:
Mary A. Barr
University of California-San Diego
9500 Gilman Drive
LaJolla, CA 92093-0094



THE CALIFORNIA LEARNING RECORD: A PORTFOLIO ASSESSMENT MODEL

The California Learning Record (CLR) yields a portfolio of information about a student's annual academic progress in K-12 classrooms. Progress is based on student performance of authentic language and literacy tasks and on consultations with parents and the students themselves. Pilot-tested by California teachers since 1987, the CLR is an adaptation of the *Primary Language Record,* developed at the Centre for Language in Primary Education in London, England. A major California contribution is the extension of the record of achievement to middle and secondary schools, using the base of literacy development to support students' academic progress in all subject areas, including mathematics.

The CLR is one model being tested by teachers across the state in response to SB 662, which calls for a total redesign of statewide student assessment. Project staff are presently conducting the research necessary to determine how CLR results compare across classrooms and districts.

How the CLR Works

Central to the CLR is teacher observation of students at work on course tasks and teacher judgment of the quality of samples of the work they produce. Teachers collect information from parents and students themselves early in the school year about student literacy experience, interests, past successes and future goals. Using this knowledge as a base, they observe students in a range of settings, from one-on-one conferences to large group and peer group activities.

B2 Reading

Please comment on the student's progress and development as a reader of literature in English and/or other languages: the stage at which the student is operating (Refer to the CLR Reading Scale which accompanies this form.); the range, quantity and variety of literature; the student's pleasure and involvement in reading, individually or with others; the range of strategies used when reading and the student's ability to reflect critically on what is read.

G. is willing to try any reading assignment, but she likes best selections involving teenagers and relationships. She has read at least 3 books in the last month (meeting her personal goal) and can read 40-50 pages during a class period of a book she has chosen. She enjoys narratives; writing styles that include subtle word play, irony, or sarcasm, (such as Dickens) are still a little difficult for her without help during class.

On the secondary experienced reading scale I would describe her as a moderately experienced reader. She is willing to reflect on her reading and is able to use what she has read in her own learning. She enjoys making connections between what she has read in a book, and her own personal experiences, and will describe the connections in her Reading Workshop journal.

What learning experiences have helped/would help development in this area?

G. would continue to benefit from a Reading Workshop environment where she would be encouraged to read books. She could be nudged to read some books with a more developed literary style and variety of plot. She should continue to read as many peer-recommended books as possible.

Observations notes and work samples are collected throughout the year in three sections of the total record. In Part A of the CLR, completed during the first quarter of the school year, teachers record details of two activities--a discussion between teacher and parent about the student's learning history and a discussion between the teacher and the student about his/her prior literacy experience. For parents of Limited English Proficient (LEP) students, the discussion is often conducted in the parents' native languages. In Part B, completed over the second and third quarters, teachers collect observation notes and record a summary of what these notes reveal about what the student has shown he/she knows and knows how to do in regard to course or class objectives. Teachers also record the kinds of experiences which have helped the student learn best. In the secondary version, students take on much of the data collection and record keeping, so they learn to apply sets of criteria to their own work samples and to monitor their own progress in terms of what they are learning to do. Part C provides for updating and reviewing the year's accomplishments.

The CLR seeks to assess student performance according to acknowledged standards without standardizing performance, allowing students to show what they can do in their own unique ways. On the basis of the observations and the work samples, the teacher describes student achievement in reading text, for example, as ranging from that of "a beginning reader" to "a moderately fluent reader" to "an exceptionally fluent reader." The terms are not intended as labels for indicating student progress through a lock-step curriculum but as aids to help ensure the students' continual improvement.

B2 Reading

Please comment on the student's progress and development as a reader of literature in English and/or other languages: the stage at which the student is operating (Refer to the CLR Reading Scale which accompanies this form.); the range, quantity and variety of literature; the student's pleasure and involvement in reading, individually or with others; the range of strategies used when reading and the student's ability to reflect critically on what is read.

Q is a moderately experienced reader on Reading Scale 2. He likes reading fantasy and folktales. Q reads silently on a daily basis and often chooses reading as a form of recreation. As a "Kinder-Buddy" Quincy has read many books to his young friend. He has also created books or anthologies. Q uses context cues as his major cueing system. He tends to reflect by relating literature to personal experiences or other pieces of literature.

What learning experiences have helped/would help development in this area?

Q has begun to show interest in the area of science. More nonfiction/information books should be made available to him. The use of many references to write a report would be helpful to Q

The CLR provides a structured way of recording important information about student learning in and outside of school. Especially helpful to LEP students is the recognition the CLR gives to their developing bilingual capabilities. Teachers often find these students surprised that such talent can help them succeed in school. Parents have been especially enthusiastic about the opportunity to contribute their knowledge about their children's learning at home.

The CLR and Restructuring Schools

While the CLR may seem "merely" a way to assess student performance, the characteristics listed below describe how it supports schoolwide restructuring:

- As a portfolio assessment method for all K-12 students, the CLR is especially important because it acknowledges and builds on the prior experience of each learner, including the learner with special needs.

- Based on current theory, research and good practice about developing literate students of each subject area, it encourages extensive experience with a range and variety of text.

• It goes beyond the notion of reading as decoding controlled vocabulary text to help learners focus on the construction of meanings in complex texts by using a range of cueing strategies.

• It recognizes writing as the other half of literacy, a strong support in learning to read and essential to academic and personal success.

• It is accompanied by a strong professional development component which features phasing in the use of narrative reporting, parent/student observations of literacy progress and sampling of student work over three years with a network of colleagues.

• Teachers using the CLR learn to use performance scales, which are congruent with desired outcomes described in the st ate curriculum frameworks and the California Learning Assessment System, to observe and document student achievement as it is illustrated in samples of work.

• It involves parents, students themselves and all teachers (support staff as well as classroom teachers) in assessing many aspects of learning.

• It documents the literacy development of both monolingual and bilingual students across a linguistic range, recording their abilities to use learning strategies and skills as well as their content knowledge and life experience.

• It combines what could be an official annual record with an informal classroom recording system.

• It provides a common language for faculty to use among themselves as well as with parents and students about learning expectations and achievements.

For Further Information

1. Regional directors of the California Literature Project (CLP) are ready to provide leadership for a 30 hour seminar series on assessment in English language arts, K-12. For the regional office nearest you, contact Gretchen Laue, CLP Executive Director, University of California, San Diego (UCSD); telephone (619) 534-1600.

2. The California Learning Record office at UCSD can provide information about CLR activities; telephone (619) 534-4430, fax (619) 534-3570.

BECOMING A READER: Reading Scale 1

Dependence ⟶ **Independence**

Beginning Reader 1	Not-Yet-Fluent Reader 2	Moderately Fluent Reader 3	Fluent Reader 4	Exceptionally Fluent Reader 5
Uses just a few successful strategies for tackling print independently. Relies on having another person to read the text aloud. May still be unaware that text carries meaning.	Tackling known and predictable text with growing confidence but still needing support with new and unfamiliar ones. Growing ability to predict meanings and developing strategies to check predictions against other cues such as the illustrations and the print itself.	Well-launched on reading but still needs to return to a familiar range of reader text. At the same time beginning to explore new kinds of texts independently. Beginning to read silently.	A capable reader who now approaches familiar texts with confidence but still needs support with unfamiliar materials. Beginning to draw inferences from books and stories. Reads independently. Chooses to read silently.	An avid and independent reader who is making choices from a wider range of material. Able to appreciate nuances and subtlety in text.

Language 1 ⟶

Language 2 ⟶

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EXPERIENCE AS A READER ACROSS THE CURRICULUM: Reading Scale 2

Inexperienced ⟶ Experienced

Inexperienced Reader 1	Less Experienced Reader 2	Moderately Experienced Reader 3	Experienced Reader 4	Exceptionally Experienced Reader 5
Experience as a reader has been limited. Generally chooses to read a very easy and familiar text where illustrations play an important part. Has difficulty with any unfamiliar materials and yet may be able to read own dictated texts confidently. Needs a great deal of support with the reading demands of the classroom. Over dependent on one strategy when reading aloud, often reads word by word. Rarely chooses to read for pleasure.	Developing fluency as a reader and reading certain kinds of material with confidence. Usually chooses short books with simple narrative shapes and with illustrations. May read these silently; often rereads favorite books. Reading for pleasure often includes comics and magazines. Needs help with the reading demands of the classroom and especially with using reference and information books.	A confident reader who feels at home with books. Generally reads silently and is developing stamina as a reader. Is able to read for longer periods and cope with more demanding texts. Including children's novels. Willing to reflect on reading and often uses reading in own learning. Selects books independently and can use information books an d materials for straightforward reference purposes, but still needs help with unfamiliar material, particularly non-narrative prose.	A self-motivated, confident and experienced reader who may be pursuing particular interests through reading. Capable of tackling some demanding texts and can cope well with the reading of the curriculum. Reads thoughtfully, and appreciates shades of meaning. Capable of locating and drawing on a variety of sources in order to research a topic independently.	An enthusiastic and reflective reader who has strong established tastes in fiction and non-fiction. Enjoys pursuing own reading interests independently. Can handle a wide range and variety of texts, including some adult material. Recognizes that different kinds of text require different styles of reading. Able to evaluate evidence drawn from a variety of information sources. Is developing critical awareness as a reader.

Language 1 ⟶

Language 2 ⟶

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California Learning Record

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School Teacher M School Year 1991-92

Name J Grade Level 1 Birth Date 02/05/85

☒ Boy ☐ Girl

Languages understood Tagalog Languages read English

Languages spoken English Languages written English

Details of any aspects of hearing, vision or coordination affecting the child's language/literacy. Give the source and date of this information.	Names of staff involved with child's development

PART A To be completed during the first quarter

A1 Record of discussion between child's parent(s) and class teacher (PLR Handbook, pages 12-13)

J 'mother says that he has always been interested in words and often asks what they mean. He loves stories which she reads to him, and he has always been very artistic. As a matter of fact, she says it's hard to get him to go outside - that he'd rather stay in and draw pictures and do school work. He also enjoys doing homework.

Signed Parent(s) Teacher M

Date 11/7/91

A2 Record of language/literacy conference with child (PLR Handbook, pages 14-15)

J claims he only knows how to read and write just easy words like "cow" and "cat" and can spell "green" only. Actually, he can spell a host of words and can write whole, fluent sentences. He says his mother taught him to read and write, she bought him his favorite book, Opposites, and he has a Snoopy dictionary at home.

Date 8/26/91 James often mentions, "I'm an artist" with great confidence. He also likes to read books from the library.

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PART B To be completed during the second and/or third quarter and to include information from all teachers currently teaching the child.

Child as a language user (one or more languages) (PLR Handbook, pages 17-18)

Teachers may want to refer to the Bilingual Education Handbook, published by and available from the California Department of Education, ISBN 0-8011-0890-X, in completing each section of the record.

B1 Talking and listening (PLR Handbook, pages 19-22)

Please comment on the child's development and use of spoken language in different social and curriculum contexts, in English and/or other languages: evidence of talk for learning and thinking; range and variety of talk for particular purposes; experience and confidence in talking and listening with different people in different settings.

J. is very social and understands the inner workings of language for appealing, thanking, and making deals as evidenced by such comments of his like, "Excuse me. Hi! Can I make something for you? I'm gonna be your friend. (his way of curry favor) You like it?" He has a very large vocabulary and uses words like "constellation" and "reception." He is highly attuned new words and always is the first to ask their meaning. He is also sensitive to others' acquisition of English as when he excitedly yelled, "I can't believe it!" when a new student spoke his first words in English.

What experiences and teaching have helped/would help development in this area? Record outcomes of any discussion with other staff or parent(s).

I encourage J. as a model for other children - I praise his state knowledge of words - and appeal to his social sense of language in being thoughtful of others. After calling someone else's work "ugly," we discussed how words can hurt people's feelings. He asked, "Then next time I think something is ugly, should I say, 'Oh, that's very nice?'" We discussed the importance of diplomacy vs. lying or being so blunt. It is evident that the adults in his family speak frankly with J., not underestimating his grasp of words, and I try to follow suit in the classroom.

B2 Reading (PLR Handbook, pages 23-28)

Please comment on the child's progress and development as a reader in English and/or other languages: the stage at which the child is operating (refer to the reading scales on pages 26-27 of the PLR Handbook); the range, quantity and variety of reading in all areas of the curriculum; the child's pleasure and involvement in story and reading, alone or with others; the range of strategies used when reading and the child's ability to reflect critically on what is read. Although an exceptionally fluent talker, J. started the year as a "non-fluent reader" on the Reading scale 1 of dependence to independence. He was overly self-conscious and self-critical about reading on command and stated in his first conference that he could only read easy words like "cow" and "cat". At first, without

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the pictures, as in one reading of the familiar text, Brown Bear, he substituted "what" for "we", "duke" for "duck" and grove" for "goldfish". During a March reading conference, he read for me cover to cover The Great Big Enormous Strawberry, book he had encountered only as a readalond, and could ad even words like "especially." In his last conference in June read with perfect fluency a new story abot a goblin with ease. is now a "fluent reader" on the fourth level of the reading scale.

What experiences and teaching have helped/would help development in this area? Record outcomes of any discussion with other staff or parent(s).

I have encouraged J. to ask himself when he reads, "Does that make sense? Does that fit with experience or with what I have just read?" and not to be overly anxious abot makin mistakes. I have encouraged him to join others who are enjoying book, so that he will experience the same social pleasure and sense of fun with reading that he has with talk.

B3 Writing (PLR Handbook, pages 29-34)

Please comment on the child's progress and development as a writer in English and/or other languages: the degree of confidence and independence as a writer; the range, quantity and variety of writing in all areas of curriculum; the child's pleasure and involvement in writing both narrative and non-narrative, alone and in collobaration with others; the influence of reading on the child's writing; growing understanding of written language, its conventions and spelling.

will take risks with using inventive spelling in his writing, like "suprebunny" on a picture he drew or "a lebig carihef" for "living creature". At first he wrote no more than one label, phrase or sentence like "This is a 7-up." unless asked to do more. aily journal writing, literature logs, and collaborative writing have ha positive effect on his fluency, and, in fact, he was the firs try a piece of expository writing in his journal on "oviparous anima hich we had read abot in Chickens Aren't the Only Ones.

What experiences and teaching have helped/would help development in this area? Record outcomes of any discussion with other staff or parent(s).

Again, because of his strong social nature I encourage J. to work with others on co-authoring and illustrating his own books. He thrives on strong verbal feedback on his risk-taking during journal writing, and I am trying to show him how he can apply these same skills in individual nd class writing projects.

Signed: Class Teacher M Date: 6/17/92

Other Staff Contributor(s) ______ Date: ______

Part C To be completed during the fourth quarter (PLR Handbook, page 35)

C1 Comments on the record by child's parent(s) This narrative report is an excellent strategy for the student because teachers, students, and parents can clearly see the development of the student from the start up to the end of the school year. It motivates parents to assist their son or daughter, helps me picture the activities and development of my son and to goals for him at home.

C2 Record of language/literacy conference with child J. says that Dr Seuss' ABC was one of his favorite books that we read this year, because you can learn different words in the alphabet. He also liked the read aloud book Would You Rather because it was funny. He says he's learned a lot reading this year and mentioned that he is up to page 81 in My First Dictionary which he has at home. He says he goes back and keeps trying to read it. He's not sure if he'll ready for 2nd grade even though he can already read from next years' Dr...

C3 Information for receiving teacher

This section is to ensure that information for the receiving teacher is as up to date as possible. Please comment on changes and development in any aspect of the child's learning since Part B was completed.

J. has made considerable progress this year. In the area of reading he started out the year comfortable with only familiar texts which we had read together or that he had read in kindergarten. By the middle of the second quarter I determined that he was a "non-fluent reader" as described on the Reading scale 1. By June he has become a confident fluent reader as described in the fourth level of the scale.

What experiences and teaching have helped/would help development? Record outcomes of any discussion with other staff, or parent(s).

Constant encouragement and exposure to a wide range of reading materials at school has helped J. make strides in the development of his reading skills. His diligence and determination as a student cannot be minimized in contributing to this progress. He has also had considerable and consistent support at home in his development as a learner.

Signed: Parent(s) ______________ Date: 6/16/92

Class Teacher M. ______________ Date: 6/16/92

Other Staff Contributor(s) ______________ Date: ______

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3 Reading Samples (reading in English and/or other languages)

to include reading aloud and reading silently (PLR Handbook, pages 45-49)

Dates			
Title or book/text (literary or information)			
Known/unknown text			
Sampling procedure used: informal assessment/running record/miscue analysis			
Overall impression of the child's reading: • confidence and degree of independence • involvement in the book/text • the way in which the child reads the text aloud			
Strategies the child used when reading aloud: • drawing on previous experience to make sense of the book/text * playing at reading * using book language * reading the pictures * focusing on print (directionality, 1:1 correspondence, recognition of certain words) • using semantics/syntactic/grapho-phonic cues • predicting • self-correcting • using several strategies or over-dependent on one			
Child's response to the book/text: • personal response • critical response (understanding, evaluating, appreciating wider meanings)			
What this sample shows about the child's development as a reader. **Experiences/support needed to further development.**			

*Early indicators that the child is moving into reading

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4 Writing Samples (Writing in English and/or other languages)

Writing to include children's earliest attempts at writing

Dates			
Contexts and background information about the writing.			
• how the writing arose • how the child went about the writing • whether the child was writing alone or with others • whether the writing was discussed with anyone while the child was working on it. • kind of writing (e.g. list, letter, story, poem, personal writing, information writing) • complete piece of work/extract			
Child's own response to the writing.			
Teacher's response: • to the content of the writing • to the child's ability to handle this particular kind of writing • overall impressions			
Development of spelling and conventions of writing.			
What this writing shows about the child's development as a writer: • how it fits into the range of the child's previous writing • experience/support needed to further development			

Please keep the writing with this sample sheet

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Observations and Samples (California Learning Record)

Attach extra pages where needed

Name: Grade Level:

1 Talking & Listening: diary of observations

The diary below is for recording examples of the child's developing use of talk for learning and for interacting with others in English and/ other languages.

Include different kinds of talk (e.g. planning an event, solving a problem, expressing a point of view or feelings, reporting on the results of an investigation, telling a story...)

Note the child's experience and confidence in handling social dimensions of talk (e.g. initiating a discussion, listening to another contribution, qualifying former ideas, encouraging others...)

The matrix sets out some possible contexts for observing talk and listening. Observations made in the diary can be plotted on the matrix to record the range of social and curriculum contexts sampled.

(PLR Handbook, pages 37-39)

	SOCIAL CONTEXTS				
LEARNING CONTEXTS	pair	small group	child with adult	small/large group with adult	variety of individuals
collaborative reading and writing activities	8/23	9/10			
play, dramatic play, drama & storying		12/10			
environmental studies & historical research					
math & science investigations	9/9				
design, construction, craft & arts projects	7/29				
audiotape					11/7
writing	11/14				
conference			11/14		

Dates	Observations and their contexts
7/29	collaborated with Reginald on a unifix train. "The train is going through the cave."
9/9	working with Masharne at the computer-came running up to me: "I can't believe it! I can't believe it! He said, 'One-two-three-four-five-six!'" (M. just arrived from Spain and speaks little English.)
11/7	wearing the audiotape fanny pack: Greetings & negotiations with many students. "What are you doing? Excuse me. Hi! Can I make something for you? I'm gonna be your friend. You like it?"
12/10	organized a learning group - using flashcards - "Who gots the letter "C"?"

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Published as a component of Portfolio Assessment and Chapter 1: The California Learning Record, a project funded by the Compensatory Education Office, California Department of Education. Dr. Mary A. Barr, (619-534-4430)

2 Reading and Writing: diary of observations (PLR Handbook, pages 40-41)
(Reading and writing in English and/or other languages)

Date	Reading
	Record observations of the child's development as a reader across a range of contexts and kinds of reading
9/23	selected M. as partner reading Brown Bear, Brown Bear, What Do You See? took turns
Sept.	key words - Voltron, robot, power, Bugs Bunny, Ninja
11/14	read from Dr. Seuss' ABC - fluently - could pick out individual words - "nose" "neckties" - when asked on the Jj page, could distinguish between "Jerry" and "jelly" - how do you know the difference? because (pointed to the "r") - that's not an "l"
12/14	understands what a comma does "like in writing a letter to Dear Buddy," uses ? often in stories but not sure how it works

Date	Writing
	Record observations of the child's development as a writer (including stories dictated by the child when appropriate) across a range of contexts and kinds of writing.
9/10	making his own Brown Bear book with two girls - later when I asked to see it, he said he threw it away -
10/23	got picture news - drew a can of 7-up - wrote "This is a 7-Up."
11/7	drew a picture and wrote "Suprebunny"
11/14	drawing a castle with flags, turrets & guards - didn't want to write anything, so I hooked him up with Jose Luis to be his writer - James dictated "The man is going to get the dragon" - helped each other with spelling
3/20	writing the poem, "Uno, Dos, Tres" in his journal - "I know what this says - look - Cho-Co-la-te - that's "chocolate" - he figured out how the poem works -

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3 **Reading Samples** (reading in English and/or other languages)
to include reading aloud and reading silently (PLR Handbook, pages 45-49)

Dates	10/22	3/6	6/16
Title or book/text (literary or information)	Brown Bear, Brown Bear	The Great Big Enormous Strawberry	Goblin Story
Known/unknown text	known - taught in class	known student-selected	unknown text
Sampling procedure used: informal assessment/running record/miscue analysis	informal text without pictures	informal	running record
Overall impression of the child's reading: • confidence and degree of independence • involvement in the book/text • the way in which the child reads the text aloud	does not display the confidence he shows with drawing & talking self-conscious self-critical	read book with pleasure pointed to and made comments about the illustrations	read confidently interacted with text - laughed at different parts read fluently
Strategies the child used when reading aloud: • drawing on previous experience to make sense of the book/text * playing at reading * using book language * reading the pictures * focusing on print (directionality, 1:1 correspondence, recognition of certain words) • using semantics/syntactic/grapho-phonic cues • predicting • self-correcting • using several strategies or over-dependent on one	without picture cues, James grapples with the text substitutes "what" for "we" "duke" for "duck" "grove" for "goldfish" - doesn't seem to know how to use graphophonic cues - overly dependent on pictures	used what he remembered of the story from a previous read-aloud session and from reading to self during SSR used all the cueing systems and his sense of the story	thinking about story sense - used meaning of sentence, phonics cues to figure out words not afraid to make errors & correct them not overly dependent on any one cueing system.
Child's response to the book/text: • personal response • critical response (understanding, evaluating, appreciating wider meanings)	nervous about reading on command - gives sense that this is not his strong area	enjoyed the book, laughed at the antics of the mouse - understood the ironies of the story	paused to think about the story and to answer questions which were contained within text
What this sample shows about the child's development as a reader. **Experiences/support needed to further development.**	still a beginning reader - lacks confidence and risk-taking provide a variety of experiences	beginning to see books as enjoyable experiences - want him to understand that this is real reading.	sees reading as a meaningful, enjoyable activity & not just a stressful assessment task.

*Early indicators that the child is moving into reading

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4 Writing Samples (Writing in English and/or other languages)

Writing to include children's earliest attempts at writing

Dates	9/16/91	3/15	6/2
Contexts and background information about the writing.	Animal story topic of student's choice	Journey story class project	Writing similes modelled after Quick as A Cricket
• how the writing arose • how the child went about the writing • whether the child was writing alone or with others • whether the writing was discussed with anyone while the child was working on it. • kind of writing (e.g. list, letter, story, poem, personal writing, information writing) • complete piece of work/extract	brainstormed possible topics chose animals - writing alone wrote pattern story - almost like a catalog I like a tiger " " " dolphin " " " panda. " " " polarbear	had a tag suitcase - cut out magazine pictures & labelled them using temporary spelling - wrote Icetie, macarownily, scell (cereal), shmpo, cards, cocey (cookie)	read above book in class spent class time discussion structure of similes in groups students brainstormed adjectives & animals
Child's own response to the writing.	pleased with results.	gaining confidence in his writing	engaged in writing similes enjoyed the activity
Teacher's response: • to the content of the writing • to the child's ability to handle this particular kind of writing • overall impressions	I made a comment about the sentence pattern & how he changed the names great confidance	complimented his risk at using inventive spelling and his title "I'm a Go To Hawaii"	again complimented his inventive spelling because it helped him to increase his overall fluency and to be more imaginative
Development of spelling and conventions of writing.	when motivated by topic, does not worry about spelling - willing to sound it out.	uses understanding of phonics to write temporary spelling used apostrophe	understood simile structure wrote "I'm as laing as a snake" "I'm as quick as a cheetah"
What this writing shows about the child's development as a writer: • how it fits into the range of the child's previous writing • experience/support needed to further development	capable of fluent sentence structures. Need to encourage him to accompany drawings with more text.	not afraid to work on his own and not overly self-conscious about errors.	Increasing his repertoire of sentence structures has progressed from very simple to more complex

Please keep the writing with this sample sheet

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THE CALIFORNIA LEARNING RECORD FORMS FOR SECONDARY ENGLISH

- **Observations and Samples Form**
- **California Learning Record Form**

(These forms may be photocopied as required.)

The enclosed forms are meant to complement the teaching and learning in middle and high school English classes. Students, at several points throughout the year, use the Observations and Samples Form to distill information they have been collecting about their development as readers, writers, and discussants in these five dimensions:

- their growing confidence and independence as indicated by their involvement with and their willingness to participate in a range of kinds of reading, writing and discussion on many different kinds of topics
- their experience as language users evidenced by their growing abilities to read and write for a wide range of aesthetic and efferent purposes as well as their increasing control over using language for their own purposes
- their use of a range of strategies to make sense of text or other experience, e.g., to unlock difficult text, to move a discussion forward, to compose for a variety of purposes
- their abilities to extend the knowledge and understanding gleaned from reading, writing and discussion by connecting it to their own experiences and goals
- their abilities to reflect on their learning, identifying their strengths and considering ways they can become more confident and independent language users

Teachers, with contributions from parents, students, and any other faculty with whom the students have worked, complete the CLR at 3 points during the academic year: in the first quarter, they record the important points from literacy conferences held with parents or guardians and the students; over the second and third quarters, they document evidence about the extent and nature of student learning, which is accumulating on their students' Observations and Samples Forms as well as in their folders; and finally in the fourth quarter, they record comments from parent or guardian and students about any development since the third quarter as well as their assessments of student progress as it is validated by selections of student work chosen for the student portfolio. It is at this time, also, they make their recommendations for further development.

Teachers may want to append writing, reading and talk samples to the CLR; others will want student work samples to remain in the student portfolio. In either case, the CLR will provide a substantive place to begin the literacy conference to be held during the first quarter of the following year.

Published as a component of Portfolio Assessment and Chapter 1: The California Learning Record, a project funded by the the Compensatory Education Office, California Department of Education. For further information, call (619) 534-4430 or (415) 565-3078.

Observations and Samples (California Learning Record)

Secondary English Language Arts

Grade Level: ______ Name: ______________________

1. Talking & Listening: diary of observations

(Refer to taped documentation, if available)

The diary below is for recording examples of your use of talk for learning and for interacting with others in English and/or other languages.

Include different kinds of talk (e.g., planning an event, solving a problem, expressing a point of view or feelings, reporting on the results of an investigation, interpreting a poem...)

Document your experience and confidence in handling social dimensions of talk (e.g., initiating a discussion, listening to another contribution, qualifying former ideas, encouraging others...)

The matrix on the right sets out some possible contexts for observing talk and listening. Observations made in the diary can be plotted on the matrix to record the range of social and curriculum contexts sampled.

	SOCIAL CONTEXTS			
LEARNING CONTEXTS	pair	small group	student with adult	large group
collaborative reading and writing activities				
dramatic/visual interpretation				
formal presentation				
non-literary discussion				
literary discussion				
other:				

Dates	Name of observer (you and others)	Observations and their contexts

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2. Reading and Writing: diary of observations

(Reading and writing in English and/or other languages)

Date	Name of observer (you and others)	Reading
		Record observations of your development as a reader across a range of contexts and kinds of reading
		Writing
		Record observations of your development as a writer across a a range of contexts and kinds of writing.

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3. Reading Samples (reading in English and/or other languages)

Dates			
Title of book/text			
Context for this sample of your reading • Known/unknown text • Pair, small group • Alone • Assigned/self chosen • Literary/efferent stance			
Your impressions about your reading • what did you have to know or understand to read this well? • what did you do if you did not understand? • how did this kind of reading add to your power as a reader?			
What this sample selected for your portfolio shows about your development as a reader • how it fits into the range of your previous reading • experiences/support needed to further development			

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4. Writing Samples (writing in English and/or other languages)

Dates			
Title/topic			
Context for this sample of your writing • how the writing arose, self-assigned or assigned by another • whether you wrote alone or with others • whether the writing was discussed with anyone while you were working on it • kind of writing (e.g., poem, journal writing, essay, story) • complete piece of work or extract			
Your own response to the writing • to the content of the writing • to your ability to handle this particular kind of writing • overall impressions			
Development of use of writing conventions			
What this sample selected for your portfolio shows about your development as a writer • how it fits into the range of your previous writing • experience/support needed to further development			

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EXPERIENCE AS A READER ACROSS THE CURRICULUM: SECONDARY

Inexperienced

Inexperienced reader 1	With limited experience as a reader, this reader generally chooses to read easy, brief texts. Has difficulty with any unfamiliar material. Needs a great deal of support with the reading demands of the classroom. Rarely chooses to read for pleasure.
Less experienced reader 2	A reader who is developing fluency as a reader and reading certain kinds of material with confidence. Usually chooses short books with simple narrative shapes. Reading for pleasure often includes comics and special interest magazines. Needs help with the reading demands of the class and especially with reading complex literature and using reference and other informational text.
Moderately experienced reader 3	A confident reader who feels at home with books and is developing stamina as a reader. Is able to read for longer periods and cope with more demanding texts, including novels and poetry. Willing to reflect on reading and often uses reading in his/her own learning. Selects books independently and can read juvenile fiction and non-fiction and use information books and materials for straightforward reference purposes, but still needs help with unfamiliar material.
Experienced reader 4	A self-motivated, confident and experienced reader who may be pursuing particular interests through reading. Capable of tackling some demanding texts, she or he can cope well with the reading in class. Reads thoughtfully and appreciates shades of meaning. Capable of locating and drawing on a variety of sources in order to research a topic independently.
Exceptionally experienced 5	An enthusiastic and reflective reader who has strong established tastes in fiction and/or non fiction. Enjoys pursuing personal reading interests independently. Can handle a wide range and variety of texts, including some adult material. Recognizes that different kinds of texts evoke different reading stances. Able to evaluate evidence drawn from a variety of information sources. Is developing critical awareness as a reader.

Experienced

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4 Writing Samples (Writing in English and/or other languages)

Writing to include children's earliest attempts at writing

Dates

1 Contexts and background information about the writing.

- how the writing arose
- how the child went about the writing
- whether the child was writing alone or with others
- whether the writing was discussed with anyone while the child was working on it.
- kind of writing (e g. list, letter, story, poem, personal writing, information writing)
- complete piece of work/extract

2 Child's own response to the writing.

3 Teacher's response:

- to the content of the writing
- to the child's ability to handle this particular kind of writing
- overall impressions

4 Development of spelling and conventions of writing.

5 What this writing shows about the child's development as a writer:

- how it fits into the range of the child's previous writing
- experience/support needed to further development

Please keep the writing with this sample sheet

1 Context and background information about the writing

Any piece of writing is a product of a particular context: this section underlines the importance of considering context in some detail when you are analysing a writing sample. It gives an opportunity to notice:

- how the writing arose (you may like to record whether the topic was self-chosen, what the curriculum context was, whether the writing was a response to something recently read).
- how the child went about the writing (how absorbed the child was in the writing, how long they worked on it, whether they wrote more than one version).
- whether the child was writing alone or with others (it may have been a collaborative piece of work, or other children may have been involved in editing).
- whether the writing was discussed with anyone while the child was working on it (it may be helpful to record the level of support being given by teachers to other adults, or children, or to look at the way the child responded to suggestions).
- what kind of writing it is — children may be writing in a way close to speech, a personal 'expressive' voice, or may be taking on voices from their reading (traditional stories, adventure comics, advertisements or information books). 'Poetic' kinds of writing (poem, story) may be earlier to develop than 'transactional' writing (reports, arguments). Generally they will find *narrative* writing (whether it is fictional or a real-life narrative) easier to manage than *non-narrative*. This space allows you to define the 'voice' you find in the writing or to say what form is being used.
- whether the writing is a complete piece of work or an extract? (You may have chosen to sample a complete short piece of writing or to look at one chapter from a story in chapters, for example. By the same token, you may be sampling an early draft of a piece of writing which is going to be worked on further, or a final draft – it may sometimes be interesting to compare the two.)

2 Child's own response to the writing

This section is a chance to record children's own comments on their writing, made either in the course of the writing or afterwards with the teacher. If children don't volunteer a comment, you can obviously invite them to say what they think.

Children may want to tell you more about the writing, or they may be able to evaluate what they have done and say how pleased they are with their work. Does it do what they set out to do? Which parts are they most satisfied with?

3 Teacher's response

An opportunity to evaluate this particular piece of writing and to say how far it seems to succeed in its own terms. Is the *content* interesting? What about the *kind of writing* – is the child using this form confidently? And finally, how does this piece strike you as a reader – what is your reaction to it?

4 Development of spelling and conventions of writing

Spelling

It will be helpful in this section to look analytically at the child's spellings and to note any particular patterns of error (such as a tendency to reverse letters in the middle of words), and any positive signs of progress. What does this piece of work show about a very young child's understanding of the writing system? If a child is 'inventing spellings' are these spellings good guesses? What does the writing show about the child's visual awareness of spelling and knowledge of common letter combinations? Are there any obvious points that could be worked on?

Written language conventions

What do you notice from this piece of writing about the child's awareness of how to present written language, lay out different kinds of texts, and punctuate written language for the reader? As the child develops as a writer, how far is s/he able to mark sentences or paragraphs, and observe other conventions of written language (e.g. inverted commas)?

5 What this writing shows about the child's development as a writer

Do you feel there have been any important changes since the last time you completed a writing sample with this child?

Some growth points you might be noticing are:

- increasing interest in writing and readiness to write
- increasing confidence and sense of control as a writer
- increasing ability to persist and work at more extended texts
- increasing ability to consider a reader's needs, and to 'write like a reader'
- increasing ability to look back over own writing and identify points which need changing, expanding, or correcting

Published as a component of Portfolio Assessment and Chapter 1: The California Learning Record, a project funded by the Compensatory Education Office, California Department of Education Dr. Mary A. Barr, (619-534-4430) and Dr. Jacqueline Cheong, (415-565-3078)

Comments On My Writing

Writing Sample #_____Date_____________Title/Topic_____________________

Context and background for this sample of your writing

1. How did you choose this topic?
2. Who is the audience for your piece?
3. How did you go about writing this piece?
4. Did you work alone or with others?
5. What kind of help did you get?
6. What changes did you make in your piece?

Your Response to the Writing

1. What part do you like best?
2. Does this piece do what you set out to do?
3. How does this piece fit with your other work?

Teacher's Response

1. What do you think your teacher will say about this writing sample?
2. What can your teacher/parents do to help you improve your writing?

Spelling and Conventions

1. How did you go about making changes in spelling, punctuation and grammar?

What this sample selected for your portfolio shows about your development as a writer?

1. What have you learned from the writing?
2. What are you going to work on next?

Comment on My Reading

Title of the Book/Text ____ Date ________
Are you familiar with this book/author? ______

Context and background for this sample of your reading

1. How did you go about selecting this piece to read?
2. Were you confident in your ability to read this selection?
3. Were you able to read all the words? ___ What words caused you trouble?

Strategies you use when reading

1. When you came to a word that you weren't sure of, what did you do?
2. What did you do if you did not understand what you were reading?

Your impressions of your reading

1. What will you remember about this piece?
2. Where do you think the author got his/her ideas or information?
3. Why do you think the author wrote this?
4. What makes this writing special?

What you need to help you as a reader

1. What do you think your teacher will say about your reading progress?
2. What can your teacher/parents do to help you improve your reading?

What this sample selected for your portfolio shows about your development as a reader?

1. What have you learned from the reading?
2. What do you plan to read next? Why?

Bilingual Children

Stages of English Learning

The following scale describes aspects of bilingual children's development through English which teachers might find helpful. It is important to remember that children move into English in very individual ways, and that the experience for an older child will be different from that of a young child. The scales emphasize the social aspects of learning as well as the linguistic. Obviously attitudes in the school to children and the languages they speak will influence their confidence in using both their first and second languages.

Stage 1: New to English

Makes contact with another child in the class. Joins in activities with other children, but may not speak. Uses non-verbal gestures to indicate meaning - particularly needs, likes, and dislikes. Watches carefully what other children are doing and often imitates them. Listens carefully and often "echoes" words and phrases of other children and adults. Needs opportunities for listening to the sounds, rhythms, and tunes of English through songs, rhymes, stories, and conversations. If you may join in repeating refrain of a story. Beginning to label objects in the classroom and personal things. Beginning to put words together into holistic phrases (e.g. no come here, where find it, no eating that). May be involved in classroom learning activities in the first language with children who speak the same first language. May choose to use first language on n most contexts. May be willing to write in the first language (if s/he can) and if invited to. May be reticent with unknown adults. May be very aware of negative attitudes by peer group to the first language. May choose to move into English through story and reading rather than speaking.

Stage 2: Becoming Familiar with English

Growing confidence in using the English s/he is acquiring. Growing ability to move between the languages and to hold conversations in English with peer groups. Simple holistic phrases may be combined or expanded to communicate new ideas. Beginning to sort out small details (e.g. 'he' and 'she' distinction) but more interested in communicating meaning than in "correctness." Increasing control of the English tense system in particular contexts, such as story-telling, reporting events and activities that s/he has been involved in, and from book language. Understands more English that s/he can use. Growing vocabulary for naming objects and events, and beginning to describe in more detail (e.g. color, size, quantity) and use simple adverbs. Increasingly confident in taking part in activities with other children through English. Beginning to write simple stories, often modelled on those s/he has heard read aloud. Beginning to write simple accounts of activities s/he has been involved in, but may need support from adults and other children and still use her/his first language if s/he needs to. Continuing to rely on support of her/his friends.

Stage 3: Becoming Confident as a User of English

Shows great confidence in using English in most social situations. This confidence may mask the need for support in taking on other registers (e.g. in science investigation, in historical research). Growing command of the grammatical system of English including complex verbal meanings (relationships of time, expressing tentativeness and subtle intention with might, could, etc...) and more complex sentence structure. Developing an understanding of metaphor and pun. Pronunciation may be very native-speaker like, specially that of young children. Widening vocabulary from reading stories, poems and information books and from being involved in math and science investigations and other curriculum areas. May choose to explore complex ideas (e.g. in drama/role play) in the first language with children who share that same first language.

Stage 4: A Very Fluent User of English in Most Social and Learning Contexts

A very experienced user of English and exceptionally fluent in many contexts. May continue to need support in understanding subtle nuances of metaphor and anglo-centric cultural content in poems and literature. Confident in exchanges and collaboration with English-speaking peers. Writing confidently in English with a growing competence over different genre. Continuing and new development in English drawn from own reading and books read aloud. New developments often revealed in own writing. Will move with ease between English and the first language depending ont he contexts s/he finds herself in, what s/he judges appropriate, and the encouragement of the school.

Hilary Hester from *Patterns of Learning.*

Australia Literacy Profiles

Victoria, Australia

For more information about the Australia Literacy Profiles, contact:

Grant Wiggins
Center on Learning, Assessment,
and School Structure
39 Main Street
Geneseo, NY 14454

Australia Literacy Profiles

- Student's behavior charted over time using 9 progressive 'bands' used for grades K-10
- Teachers keep running records, based on observation and tasks assigned

Reading Band A

Holds book the right way up
On request, indicates the beginning and end of sentences...
Refers to letters by name
Responds to literature (smiles, claps, listens intently)
Shows preferences for particular books...

Turns pages from front to back
Locates words, lines, spaces, letters
Identifies known, familiar words
Joins in familiar stories

Reading Band B

Takes risk when reading
Asks others for help with meaning and pronunciation
Recognizes root words within other words
Creates ending when text is left unfinished

Uses pictures for clues to meaning of text
Predicts words
Makes a second attempt at a word if it doesn't sound right
Retells with approximate sequence...

Reading Band D

Selects books to fulfill own purposes
Substitutes words with similar meanings when reading aloud
Themes from reading appear in art work
Reads materials with a wide variety of styles and topics

States main idea in a passage
Self-corrects, using knowledge of language structure or sound-symbol to make sense of a word or phrase
Uses vocabulary and sentence structure from reading in written work as well as talk

Reading Band F

Selects relevant passages to answer questions
Maps out plots and character developments in novels
Makes connections between texts
Discusses styles used by different authors
Offers reasons for response provoked by text
Justifies own appraisal of text

Formulates questions and finds relevant information from reading
Varies reading strategies according to purposes of reading and nature of text
Discusses author's intent
Forms generalizations about a range of genres including myth, short story
Offers critical opinion or analysis of reading passages in discussion

Reading Band I

Explains textual innuendo and undertone	Interprets analogy, allegory, and parable in text
Identifies and explains deeper significances of text	Defends each interpretation of text
Discusses and writes about the author's bias	Analyzes the cohesiveness of text as a whole

A Philosophy and Strategy of Instruction to Teach Reading in the First and Second Grades

Albuquerque Public Schools
Albuquerque, New Mexico

For more information, contact:
Kathryn Weil
Albuquerque Public Schools
930-A Oak Street, S.E.
Albuquerque, NM 87106

A Philosophy and Strategy of Instruction to Teach Reading in the First and Second Grades

COMPONENT I - Describe the district philosophy and strategy of instruction used to teach reading in first and second grades.

A. Philosophy

Albuquerque Public Schools recognizes that within the emergent, intermediate, and advanced stages of literacy, individuals bring unique knowledge and experience to the learning process. The school develops and nurtures the child's desire to become a lifelong learner and provides the opportunity for children to continue their literacy development. The essence of literacy is the process of communication: gathering and exchanging ideas and information in meaningful ways. All aspects of literacy - listening, speaking, reading, writing, and thinking - should be developed and facilitated concurrently. Literacy is best encouraged when these aspects are integrated and permeate all events in the child's school day.

B. Strategies

- Model the process of reading and writing.

- Document continuously student growth in the literacy process.

- Teach writing and reading simultaneously.

- Utilize a variety of reading materials to promote literacy.

- Facilitate students' collaboration in reading, writing, listening and speaking experiences.

- Introduce literacy skills in varied and appropriate ways when children are ready.

- Teach students to gather information in a variety of ways.

- Integrate the teaching of reading, writing, speaking and listening across the curriculum.

- Teach students to read by reading.

- Read to students.

- Teach students to write by writing.

- Incorporate literature as the major tool of instruction.

- Build on the background knowledge children bring to the classroom.

COMPONENT II - Review and select an appropriate assessment procedure consistent with the philosophy and strategy of instruction identified above.

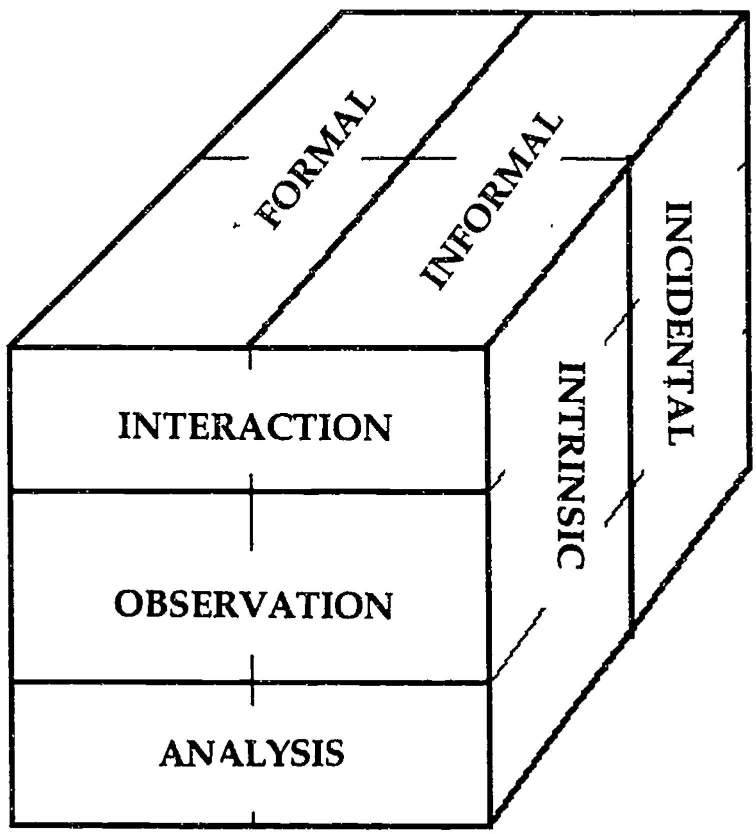
A.

The plan presented by the Albuquerque Public Schools is developmental and will be implemented over the next three school years beginning with the 1989-1990 school year. The two-phased plan accommodates the need for staff development and further resource support for the assessment tools described.

The Albuquerque Public Schools views the instruction of reading as an individual process for both the teacher and the student. Because reading instruction and assessment are integral parts of the same instructional process, teachers will have the opportunity to document student progress through selection of appropriate assessment strategies from a menu of options.

An Assessment Model

from: The Whole Language Evaluation Book,
Kenneth S. Goodman, Ed., 1989.



The figure above models the relationships among the evaluation strategies of interaction, observation, and analysis within the classroom setting. Each may be done formally, informally, incidentally, or may be intrinsic to classroom instruction.

Interaction includes conversations, questions, conferences, discussions, writing and other ways teachers relate with students. These interactions may be informal or incidental, or they may be intrinsic, formal, planned elements of instruction intended for continuous assessment of student progress.

Informal observations take place as teachers watch, listen, notice, and jot notes. Formal observations can include anecdotal records, check sheets, and written narratives about a student's development. Teachers can observe incidentally as classroom events and interactions take place, or as part of a planned process for specific purposes.

Analytical tools such as audio tapes, writing folders, reading portfolios, and other samples of student work are examples of formal devices used to gain specific information about children's performance. These tools can be used either intrinsically or incidentally, and as teachers become experienced in their use, analytical tools can be used informally.

<u>Phase I (1989-1990)</u> - Select and use strategies from the Reading Assessment Menu to document student mastery of essential competencies for state reporting.

READING ASSESSMENT MENU

1. <u>Student Work Samples</u>
   a. **Student Journals**
   b. **Tape Recordings**
   c. **Writing samples and/or writing folders**

2. <u>Formal Assessments</u>
   a. **Basal reading or other textbook tests**: tests provided with publisher materials.

   b. **Book Handling Task**: individual assessment in which a child's knowledge of a book and all its components is analyzed to determine beginning reading skills.

   c. **Evaluation of Student Writing**: documentation of individual student's writing progress, assessing both writing content and writing conventions.

   d. **Miscue Analysis**: Individual assessment in which (1) the reader's miscues (errors) are analyzed to evaluate his/her use of the language cueing systems;

(2) the reader's retelling of the story is analyzed to determine the quality of comprehension.

e. **Word Recognition Placement Inventory (WRPI) or other word recognition tests**: graded word lists read individually by students to determine reading level.

f. **Individual Reading Inventory (IRI)**: any individually administered assessment of students' reading errors and comprehension to determine reading level (independent, instructional, frustration).

3. Informal Assessments

a. **Teacher-made Tests**: any literacy assessment instruments designed by individual teachers for classroom use.

b. **School-designed Tests**: any literacy assessment instruments designed by school staffs for school-wide use.

c. **Teacher Observation**: informal and formal methods of documenting children's literacy performance.

d. **Anecdotal Records**: a form of recording specific information about children.

e. **Records of Book Read**: a listing of the titles of books students have read, reading and writing conferences held, stories published, and other indications of reading progress during the school year.

Phase II (1990-1992) - the menu described above will be extended to include the following elements.

1. Formal Assessments

a. **Emergent Storybook Reading**: individually administered assessment describing levels of the student's beginning reading qualities and abilities.

b. **Running Record**: to be designed in accordance with work done by Marie Clay.

2. Informal Assessments

a. **Student self-evaluation**: a process closely aligned to student portfolio development.

B. Rationale

All elements of the Reading Assessment Menu have been included to support the continuous nature of reading assessment for all students which has been recognized as a necessary strategy in the instructional process. Each teacher will select one or more of the assessment strategies which are compatible with the instructional strategies in the classroom as well as with the learning styles of the students. The menu allows teachers the opportunity to use formal and informal assessment tools through incidental or intrinsic methods of interaction, observation, and/or analysis.

Documentation of Children's Work at the Bronx New School

Bronx New School
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Documentation of Children's Work at the Bronx New School

The following practices were developed at the Bronx New School. They are intended to enhance teachers' abilities to make each child clearly visible and thus support each child's strengths. It is my belief that these practices are instrumental in developing an inclusive learning environment that supports heterogeneity (in regards to socioeconomic and ethnic background, as well as in regards to strengths and learning styles).

A school such as ours is able to utilize documentation of children's work in a unique way because there is continuity of philosophy and practice throughout the grades. Our documentation system is made up of varying forms of evidence. It includes information about each child (children's work samples, teacher observations, and teacher/parent reflective processes) as well as information about the curriculum development of each class grouping. This documentation package is offered to teachers, families, and the community at large as an alternative to the information provided by standardized tests and sequential textbooks/workbooks.

Information about each individual child in our school is kept in a portfolio. The portfolios are used for several purposes: to inform families and successive teachers of each child's growth and development, and to document the work of the school as a whole. The portfolios will travel with the children from one teacher to the next over the years that each child is in the school.

Portfolios will contain information about the child:

Dated samples of children's actual work (including running records for reading, writing samples, math work, drawings, photos, etc.).

Dated teacher observations of children - reading/writing, math, as well as general approaches to learning (each child's particular learning styles, themes, and interests).

Narrative progress reports that are culled from the above information.

Record or family/school conferences and information gained through them.

Information about each class is kept by each teacher. It is in the form of dated observations about the progress of group themes, dynamics, and interactions. These records are used to facilitate teachers' responsiveness to children as well as to help shape curriculum development.

Teacher reflective processes are being developed and put into practice. They are:

Curriculum Review (developed by the Prospect Center) - a reflective process undertaken by the teaching staff that documents the curriculum development of individual classes. It is used to sensitize teachers' responsiveness to children.

Descriptive Review of Child (developed by the Prospect Center) - a reflective process undertaken by staff members (and soon to include parents) used to look deeply at an individual child's strengths, interests, and learning styles. It includes an opportunity for collaborative recommendations for the child or joint focusing on a particular question. Through looking at one child in depth, knowledge about children in general is generated.

All of the above procedures are being developed at the Bronx New School with the assistance of the curriculum consultant who is funded through the Aaron Diamond Foundation grant.

Sheet A

Observation Of Reading Behavior

NAME ____________________ YEAR ____________________

AGE ____________________

	Date	Comment
Recognizes name		
Prints own name		
Can indicate cover of book		
Can indicate front of book		
Can indicate back of book		
Can indicate title		
Can indicate print		
Can indicate picture		
Knows where to start reading		
Knows which way to go		
Know to move left to right and return to beginning of next line		
Knows first word		
Knows last line		
One to one matching		
-becoming established		
-well established		
-uses as cue for self-correction		
Can indicate a word		
Can indicate the space between the words		
Can indicate a letter		
Can indicate a capital letter, e.g. M		
Can indicate a small letter, e.g. m		
Can match capital and small letters		
Knows some letters		
Letter identification test score		
Can indicate a full stop		
Can indicate a comma		
Can indicate a question mark		
Knows some basic vocabulary		
Word test score		
Is writing letters		
Is writing parts of words		
Is writing words properly sequenced		
Is writing groups of words		
Is writing simple sentences		

Settings for Assessment of Children's Reading in Primary Classrooms

Setting	Examples of child's activities
Storytime: teacher reads to class (response to story-line; child's comments, questions, elaborations)	
Independent reading: book-time (nature of books child chooses or brings in; process of selecting; quiet or social reading)	
Writing: (journal, stories, alphabet, dictation)	
Reading Group/Individual: (oral reading strategies; discussion of text; responses to instruction)	
Informal settings: (use of language in play, jokes, storytelling, conversation)	
Books and print as resource: (use of books for projects; attention to signs, labels, names; locating information)	
Other:	

CCE/ETS

Things to Keep in Mind When Doing Progress Reports

HOW DOES THIS CHILD:

I. Themes of Interest
   - Approach new things, new skills, new experiences

II. Social Development
   - Relate with classmates and schoolmates
   - Relate with adults and other "authorities"
   - Handle regular daily classroom rules and routines
   - Deal with materials, clothes, environment
   - Attend to work
   - Stand up for her/his own rights
   - Handle frustration

III. Language Development
   - Describe ideas, feelings, events
   - Act when other are speaking
   - Converse with others
   - Use vocabulary

IV. Reading
   - Refer to Literacy Development Sheet

V. Writing
   - Use writing opportunities
   - Think up ideas for writing
   - Handwriting
   - Use drawings

VI. Mathematics
   - Use numbers in the world around him/her
   - Make connections between things
   - Sort and classify
   - See patterns and relationships
   - Understand mathematical terms
   - Use counting
   - Use computation
   - Use estimation
   - Use and understand measurement - non-standard: with cubes, blocks, string, etc.
   - Use and understand measurement - standard: with rulers, inches, centimeters
   - Use and understand surveys and graphing
   - Apply math skills to other projects and activities

VII. Homework
   - Handle the return of homework - on time, completed
   - Put in effort
   - Work in regards to neatness and care

Sample Progress Report

Name: ____________
Teacher: Sue MacMurdy

Date: 2-18-91
Grade: 2

1. Themes, interests, approaches to learning:

K has a strong interest in discovering "how things work", an interest that has been reflected in his many constructions and electrical and mechanical projects. He is interested in learning about Space and other science themes presented in the "New True Books" and "Magic School Bus" series. Humor is a strong motivating force for learning!

With regards to literacy development, K is well-launched on reading! He uses a broad range of reading strategies - picture and context clues, sounding out words, and breaking larger words down into smaller, known parts. He rereads to self correct and to maintain momentum. His miscues are generally meaningful, especially when he is tuned into the illustrations - rather than getting "stuck" on trying to sound out a single word. He can read books from the "I Can Read" series with increased confidence. He continues to be very attuned to all classroom print, charts, and black board messages and is always eager to read them aloud.

In his writing K continues to draw a diagram first, then writes with the purpose of explaining or elaborating his drawing. He writes by sounding-out words, using classroom print and the other children as spelling resources as well. He borrows ideas and themes from books he's read or from the stories of his friends and then adapts them to his own purposes. Humor frequently plays an important role. He is becoming increasingly aware of the need for punctuation and capitalization. K takes particular delight in dramatizing his stories in puppet shows! He also loves to write on the computer using The Bank Street Writer Program.

K's interest in working with computers carries over into Math where he uses the "Racing Car Math" program on almost a daily basis to practice simple addition and subtraction facts. His number sense has improved greatly. The Hundreds Board has been of particular help to him in working out computational problems and in understanding the relative values of numbers and their relationships. A sense of place value is slowly emerging, although K still prefers to count by 1's, usually with the aid of the Hundreds Board. He can read and interpret story problems and knows when to add or subtract. He can tell time to the hour and half hour. His sense of spatial relationships is well-developed and he enjoys working out complex construction and mechanical problems using building materials - like figuring out how to design a working elevator or how to precisely fit a lego train between two platforms or through a tunnel.

II. Social/Emotional Development:

K is well-liked by both adults and his peers. He expresses himself freely and with confidence both during the group meeting and 1-1. He is most focused in his work and productive when working with a small number of children in close proximity to a supportive adult.

His difficulty in controlling the impulsive urges to touch other children's work frequently instigates a conflict, as does his tendency to become easily distracted during meeting and work times. Both his classmates and I will continue to support his growth in these areas.

K remains always an "idea person", not only with regard to his own work, but in terms of his ability to act as a catalyst for ideas for the rest of the classroom.

III. Parent's And/Or Child's Comments:

Teacher's Signature:______________
Director's Signature:______________
Child's Signature:______________
Parent/Guardian's Signature:_____________

Continuum of Written Language Development and the Emergent Reading Checklist

Excerpted from Davidson, A. (1990). *Literacy Links. Teachers' Resource. Emergent Stages 1 & 2.* Aukland 3, New Zealand: Shortland Publications, LTD.

For more information, contact:
Shortland Publications, LTD.
360 Dominsion Road, Mt. Eden
Auckland, New Zealand

CONTINUUM OF WRITTEN LANGUAGE DEVELOPMENT

NAME: ______________________ DATE OF ENTRY TO SCHOOL: ____________

Date entries every 3 or 4 weeks. Note non-progress, any comments on child's examples. Note child's 'reading' of the sample and attach to sample.

	DATE OF ENTRY	COMMENTS
Pre-letter writing		
Writing letters, symbols or numerals randomly		
Left to right sweep of letters established		
Random pointing when reading back		
Letter pointing when reading back		
Random use of sight words		
Uses initial consonants		
Partial phonetic representation for word being spelled		
Starting to cluster letters		
Left to right sequential arrangement of words		
Uses a few known words in correct place		
Complete phonetic representation for word being spelled		
Uses many sight words in correct place		
Reads back accurately at conference		
Spaces words correctly		
Sequences ideas		
Rereading for sense		
Variety of topic choice		
Beginning to use capital letters		
Beginning to use vowels		
Uses end sounds correctly		
Writes legibly		
Can give a title when requested		
Writes own title		
Uses capitals correctly		
Uses periods correctly		
Marks approximations, teacher corrects after conference		
Uses more correct spelling than approximations		
Can carry a story		
Uses a variety of styles · factual · imaginative · retelling		

EMERGENT READING CHECK

NAME: ______________________ AGE ON ENTERING SCHOOL: ________

	COMMENT	DATE
Enjoys listening to stories.		
Chooses to read from various resources.		
Can sit for a time and read a book.		
Participates confidently in Shared Reading.		
Participates confidently in Shared Writing.		
Retells stories and rhymes.		
Likes to write.		
Understands that writers use letter symbols to construct meaning.		
Can show the front cover of a book.		
Understands that from the print comes the message.		
Uses pictures as clues to the story line.		
Knows where to start reading the text.		
Knows which way to go, L → R, and to return.		
Can point and match 1–1 as teacher reads.		
Checks 1–1 when reading alone.		
Can indicate a word.		
Can indicate a letter.		
Can indicate the space between the words.		
Can recognize some high-frequency words both in and out of context.		
Can write some high-frequency words independently.		

The Descriptive Review of a Child

Excerpted from Andrias, J., Kanevsky, R.D., Strieb, L.Y., and Traugh, C. (1992). *Exploring Values and Standards: Implications for Assessment.* New York: National Center for Restructuring Education, Schools, and Teaching, Teachers College, Columbia University.

For more information about the Descriptive Review of a Child, contact:

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The Descriptive Review of a Child

Rhoda Drucker Kanevsky

In September 1990, the School District of Philadelphia announced plans to discuss elementary school restructuring and alternative assessment. We decided to start our year in the Philadelphia Teachers Learning Cooperative (TLC) with a special series of discussions about the values and standards inherent in various assessment formats in order to be more effective in the district's discussions.[1] We hoped to clarify the values we hold and assumptions we make about what is important for children and what should be happening in classrooms. We decided to take a close look at the Descriptive Review of a child, one of the reflective processes developed by Patricia Carini and colleagues at Prospect Center. The TLC has been using these processes in our weekly meetings since 1978. We know they are alternatives for assessment and can be useful in discussions about school restructuring.[2]

We focused on the Descriptive Review of a child because it helped us discover what is important to a child, how a child thinks and learns, standards a child might hold for her work, and what can support the child's education.

> The primary purpose of the Descriptive Review of a Child is to bring together varied perspectives in a collaborative process, in order to describe a child's experience within the school setting. An underlying assumption of the Process is that each child is active in seeking to make sense of her or his experiences. By describing the child as fully and in as balanced a way as possible, we begin to gain access to the child's modes of thinking and learning and to see their world from their point of view: what catches their attention; what arouses their wonder and curiosity; what sustains their interest and purpose (***The Prospect Center Documentary Processes***, June 1986).

Teachers in the TLC know how important the process is for learning about individualism as well as about children in general; but the group had never examined the format itself. We asked the following questions: What assumptions are implicit in the format? What is being valued? What are the implications for assessment and evaluation?

In this study, I will go through the Descriptive Review of a child as it occurs in TLC meetings. Alongside each descriptive heading, I will list some of the assumptions and values

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[1] See The Philadelphia Teachers Exchange, "On Becoming Teacher Experts: Buying Time," *Language Arts* 61 (7): 731-736.

[2] Members of the group were: Judy Becker, Marta Bloy, Pat Boyle, Karen Bushnell, Patty Cruice, Lisa Hantman, Dimitrios Hilton, Rhoda Kanevsky, Joyce Kemmler, Helen Lamont, Connie Major, Marsha Matusow, MaryAnn McBride, Leslie McGoldrick, Nancy McGrath, Judy Mintier, Peg Perlmutter, Barbara Pressman, Joann Seaver, Lynne Strieb, Jan Swenson, Sherry Tatro, Barbara Tucker, Marcia Volpe, and Betsy Wice.

I have drawn from the group's description of the format during our meetings. I am including excerpts from a teacher's presentation and some of the participants' questions and recommendations to show how the process works. At the end of this examination, I will draw from a series of discussions in which we consider the larger implications of the Descriptive Review for teachers and schools.

* * *

A teacher in the Teachers Learning Cooperative requests the review during our planning meeting because she has questions about a particular child. The focusing question of the review depends on what the presenting teacher wants to learn. Here are some examples of focusing questions from the past few years: "How can I help Janean gain academic competence?" "How can I help Jason work more productively with other children in the classroom?" The teacher may need to decide on future placement for the child. She may seek ways to bridge the gap between the school requirements and the child's interests. The teacher may not be able to see how she can support the child, and she may have requested the review in order to see the child in a new light. Sometimes a child seems to be "invisible" in the classroom, and the teacher needs to find out what the child is all about. Discrepancies in the child's work or behavior may puzzle the teacher.

Reviews do not always focus on problems. Special abilities or talents may draw a teacher to a particular child; conducting an exploratory review will help a teacher learn more about a child's experiences in the classroom. Descriptive Reviews uncover what a child values and what standards the child has for himself or herself.

Before the presentation, the teacher discusses her focusing question with a designated chairperson. In order to give a full portrayal of the child, she prepares the description using the following headings: *Physical Presence and Gesture*, *Disposition*, *Relationships with Children and Adults*, *Activities and Interests*, and *Formal Learning*. These headings and guiding questions provide a framework for learning what the child cares about and does well, and what the child's strengths are in all areas of the classroom. The teacher is asked to include both characteristic as well as unusual behavior. The headings are not discrete categories; they overlap and interrelate. Teachers feel that the procedure is flexible and agree that the specific questions under each heading help to make the child visible. The child emerges as a unique person who is trying to make sense of the world.

Building on the teacher's description of the child and on the chairperson's summary (which highlights dominant themes and patterns within the portrayal), the group's questions and comments may bring out new information from the presenter. The focusing question may even shift as a result of what emerges from the questioning. This interaction between the presenter and the listeners/participants helps the teacher overcome her own biases. Finally, using the new information, the group recommends ways to support the child's strengths in the classroom. No one is trying to change the child. Rather, the Descriptive Review helps the teacher use the child's interests and values to create harmony in the child's school life.

What follows is an example of one Descriptive Review.

* * *

STEP I. Chairperson convenes the session. The teacher uses a pseudonym for the child, in order to protect his privacy.

Teacher: Sam is a first grader. He was 7 years old at the end of December. He has a sister who is 5 years old.

Chairperson describes the focusing question:

> How can Teacher R. support Sam's academic and social development so that he can become more independent and work along with others without constant supervision?

STEP II. The teacher presents the child according to the five headings listed earlier; the portrayal is usually uninterrupted. When the teacher's setting is unfamiliar to all the participants, the teacher begins the review by first showing the group her room plan and schedule.

1. PHYSICAL PRESENCE AND GESTURE

Guiding Questions

Characteristic gestures and expressions: How are these visible in the child's face, hands, body attitudes?
How do these expressions and gestures vary, and in response to what circumstances? (e.g., indoors and outdoors)
Characteristic level of energy: How would you describe the child's rhythm and pace? How does it vary?
How would you describe the child's voice: Its rhythm, expressiveness, inflection?

Implicit Assumptions

--A teacher learns about a child by observing the child.
--Describing is a way of knowing.
--Gesture can be described by using language that is grounded in specific detail.
--Each child is unique.
--Each child is complex.
--The context for behavior is important.
--Behavior may vary with the context.
--A teacher will take time to think about the child.

What Is Valued

--The whole child.
--The child's expressiveness.
--What the child shows us through her/his voice, body, gesture.
--The teacher's observations.
--The teacher's *sense* of the child.
--Taking time to pay attention to contexts and settings.
--The immediacy of daily social interactions.
--A range of behavior, including both typical and occasional.
--Particular language to convey shades of meaning.

Presentation

Sam, an attractive African-American boy, is slight, small. and usually has something in his mouth: his shirt, finger, or fist. Part of him is always wet. He is often tired and unkempt, but he brings healthy snacks to school. He moves around, with loose, open movements. I feel like he slips through my fingers. Often he appears confused, with a spaced-out look in his eyes. Never still, he is likely to wander around the room. He wants to touch everything. He keeps looking around as he works, except when he is drawing. Then his whole body is concentrated and focused on his bold images. He bears down hard with his crayons in regular and determined motions. He will initiate conversations but may not make eye contact when he talks to me. He often talks in a sing-song way, as if he's a baby. But there are flashes of poetic language: "Snow is God's spitballs." He gets very pleased with himself when he thinks he has said something "smart."

2. DISPOSITION

Guiding Questions

How would you describe the child's characteristic temperament and its range? (e.g., intense, even, lots of ups and downs)
How are feelings expressed? Fully? Rarely? How do you "read" the child's feelings? Where and how are they visible?
What is the child's emotional tone or "color"? (e.g., vivid, bright, serene, etc.)

Implicit Assumptions

--What we share as human beings makes us understandable to each other.
--Grounding observations in specific examples will evoke the child.
--A child will express a full range of feelings over time and in different settings.

What Is Valued

--Specific observation.
--Language that draws on imagery to create the child's feelings.
--A teacher's *sense* of a child.
--Shades of meaning.

Presentation

Sam is often late. Coming into the room seems to be hard for him. He has intense shifts in moods; he can enter the classroom boldly or very reluctantly. But lately his mornings are more cheerful. He seems especially lively at journal time. He talks a lot to other kids about what he is drawing. Through the day there are lots of ups and downs. He often seems sullen and irritable. I think he gets hungry. He can be sweet and expansive, but he also can be mean and snarl at other kids. He loses it a lot, punches others, and sneaks a kick when he is standing in line. He cries if he feels wronged, but he usually can't say much about how he feels. He is concentrated and calm when involved in painting, drawing, Lego. In the past, when I reprimanded him he wouldn't acknowledge he was wrong. Lately he can.

3. RELATIONSHIPS WITH CHILDREN AND ADULTS

Guiding Questions

Does the child have friends? How would you characterize these attachments? Are they consistent? Changeable?
Is the child recognized within the group? How is this recognition expressed? Is the child comfortable in the group?
How would you describe the child's casual, day-to-day contact with others? How does this daily contact vary?
When there are tensions, how do they get resolved?
How would you describe the child's relationship to you? To other adults?

Implicit Assumptions

--Friendships are important.
--There is a fluid community in the classroom.
--A child will be part of many kinds of interactions in the classroom.
--A child needs to feel safe and comfortable with the group.
--A teacher notices and is concerned about all aspects of the child.
--A child has continuity in her approach to the world of people and ideas.
--A child develops a definition of herself in relation to other children and adults.

What Is Valued

--Friendships.
--Relationships of all kinds.
--A child's capacity to connect with children and adults.
--The child's own feelings, preferences, choices, judgments.
--How a child sees herself or himself in relation to others.
--Other children's view of the child.
--A child's ability to resolve problems.
--The everyday, ordinary life experiences in a classroom.
--A teacher's own feelings about a child.
--A teacher's awareness of the group.

Presentation

At first this year Sam was very much alone and didn't talk much to other children. He played in areas with others but without relating to them. As the year went on, he began to relate to other kids around drawing and Lego and toys like Ninjas. He began to be more sociable as others talked about their writing and drawing. He loves Tarik, who is also an artist, and they draw special things for each other. He has been much happier since I changed his seat so he can be next to Tarik. But sometimes he will punch others, even Tarik, and be very mean. Some of the girls include him in their games in the schoolyard, letting him play at being Clifford, and they ride on his back. I have urged kids to try to help him control himself, and they seem to allow him more latitude in behavior. They are very accepting of him although he invades other kids' space, will go under their desks for some inviting toy, and then put it under his own desk. They get annoyed but don't complain as much about him as about other kids. They love his art work.

Although he takes up a lot of time, I find him appealing. I am drawn to his powerful drawings and paintings. I hug him, talk to him a lot, and praise his work. I sit with him and try to get him to focus on his work and control his behavior. Often I have sent him to paint at the easel to calm him down. He seems to appreciate my contact and affection and very recently has tried to hug me back. He has a good relationship with an aide who comes once a week. I have her read to him and take dictation at journal time. He always cheers up when he sees her.

4. ACTIVITIES AND INTERESTS

Guiding Questions

What are the child's preferred activities?
Do these reflect underlying interests that are visible to you? For example, does drawing or story writing center on recurrent and related motifs such as superhuman figures,

danger and rescue, volcanoes, and other large scale events?
How would you describe the range of the child's interests?
Which interests are intense, passionate?
How would you characterize the child's engagement with projects? (e.g., quick, methodical, slapdash, thorough)
Is the product important to the child? What is the response to mishaps, frustrations?
Are there media that have a strong appeal for the child? (e.g., paint, blocks, books, woodworking)

Implicit Assumptions

--There is an observable pattern in a child's approach to the world.
--A child's choices indicate what is important to him or her.
--Certain motifs appeal to a child more strongly than others and will be reflected in her work.
--A child seeks meaning from experiences.
--A child can discover what he or she cares about in a rich classroom.
--A child can be understood from her approach to her work.
--Both process and product are observable and can be described.

What Is Valued

--A child's interests and choices.
--How a child is made visible in a classroom.
--A full range of activities and expressive media in the classroom.
--A child's capacity to make choices.
--The process of making, doing, creating.
--A child's capacity to become engaged in and care about her work.
--The child's work itself.
--A teacher's observations over time.

Presentation

Sam loves drawing, and he eagerly begins to draw in his journal. Other kids ask him to draw things for them all the time. In his pictures and stories he often will bring things together: the Ninjas meet Clifford; Rudolph the Red-Nosed Reindeer meets Raphael. Each picture is a story. He starts with bold lines to open up space, then fills in figures with solid strong color, covering double pages in his book. Themes in his work are: heroes, monsters, dinosaurs, volcanoes, floods, action, fighting, powerful figures. He is proud of his artwork. [At this time, the teacher shows the group Sam's pictures and journals and passes them around.]

He is always engaged at project time. He loves sand, large blocks, and other construction materials. He is especially passionate about Ninjas, which he and other kids bring in. He builds elaborate Lego constructions -- cars, houses, planes -- working intently and alone, staying focused on his project.

Everybody is seated either at their desks or on the rug at the times for journal writing, small group reading, and group discussions. Sam has trouble staying focused and finishing his work at those times. He breaks the classroom rule and sometimes wanders around, watches what other kids are doing, or begins projects that are not supposed to be done then.

He is very interested in all the science work we do. He wants to touch the caterpillars, play with the bugs and earthworms. He loves colored water and using kaleidoscopes. He gets deeply absorbed in stories, but has a hard time sitting with the group when we are reading together. He looks at books a lot, especially ones about things we have in the room.

5. FORMAL LEARNING

Guiding Questions

What is the child's characteristic approach to a new subject or process or direction?
In learning, what does the child rely on? (e.g., observation, memory, trial and error, steps and sequence, getting the whole picture, context)
How does that learning approach vary from subject to subject?
What is the child's characteristic attitude toward learning?
How would you characterize the child as a thinker?
What ideas and content have appeal? Is there a speculative streak? A problem-solving one? A gift for analogy and metaphor? For image? For reason and logic? For insight? For intuition? For the imaginative leap? For fantasy?
What are the child's preferred subjects?
What conventions and skills come easily? Which are hard?

Implicit Assumptions

--A teacher can observe and describe a child's learning approach.
--A child approaches new things in a special way.
--There are many ways to learn.
--A child's learning approach depends on subject matter and context.
--A child puts effort into learning.
--Every child is a thinker.
--Every child is trying to make sense.
--A child's engagement is expressed through language.
--Some things come easy; some are hard.
--A child has interests and preferences.

What Is Valued

--The child's particular learning approach and the strategies he or she relies on in different contexts.
--Ideas and subject matter.
--Many cognitive styles and diverse approaches to learning.
--Expressive language.
--A child's own choices and preferences.
--A child's strengths.
--A teacher's capacity to observe and describe.

Presentation

When Sam is drawing, he never seems to doubt his ability to create the image he wants. When we were making a big book about the Gingerbread Man, he could draw a picture that would capture the whole episode without any hesitation. He often looks very critically at his drawings. When he doesn't like one, he crumples it up or just goes on and starts a new one.

Sam gets frustrated in academic tasks and often says, "I can't do this," without trying. I find him very pathetic at these times. He seems to feel hopeless about his own resources for figuring out a word when he is writing or reading. He stops dead in his tracks, and it is only when I give him lots of support that he will try again. There is evidence in his journal that he has occasionally done it himself: written "bz" for "because" and "Lndo" for "Leonardo"; but even after he tells me the story he wants to write, and I help him with the invented spelling of some words, he can't sustain the effort himself. I usually have to move his finger to get him to track a line when he is supposed to be reading along with me.

Routines of all kinds are hard for him. Bringing back homework or library books, moving in the classroom to new activities, putting things away -- all these have been very hard. He has lost at least four homework books, partly because his after-school situation is so chaotic.

Formats seem to confuse him. In the math workbook, he needs a lot of help to figure out what is expected. He needs a lot of help using counters with math problems. Even after we have done a few examples, it is hard for him to keep doing each one the same way. It took him a long time to figure out and remember that there was a different way to do addition and subtraction problems. He is getting better at it now. He seems to love to do subtraction examples now. And, when he gets going, he wants to do lots and lots of them.

He is beginning to read, using predictable books, and the Bank Street Pre-Primers. He gets very excited about his successes. But he doesn't want to make mistakes. He is drawn to books about animals, especially dinosaurs, sharks, and bats, and will try to tackle easy books. He knows a lot of general information and gets excited about ideas. He uses language inventively.

Chairperson: Summing up, how would you characterize the child's strengths? The child's vulnerabilities?

Presenting Teacher: Sam has wonderful artistic ability and a real spark -- interesting language and imaginative ways of seeing. He has trouble focusing and can get frustrated in academic work, and he can fall apart easily, both academically and socially. He gets confused and seems to feel lost and depressed a lot.

STEP III. Following the portrayal, the chairperson makes a short restatement of the portrayal, calling attention to dominant themes running through the picture presented.

Implicit Assumptions

--A pattern emerges across all the headings that helps us understand the child.
--People are understandable to each other.
--Hearing the dominant themes highlighted will help participants get an overall sense of the child and refocus on the child's strengths.
--Other perspectives balance the portrayal.

Chairperson's Summary

Sam's vulnerabilities overwhelm him, although it seems that he is happier now and is more responsive to the teacher and other children. Sam does have considerable strengths, which include his talent in art, but he seems to have trouble being in touch with them. He loses track of himself. He has lots of ups and downs.

Although he is appealing in many ways, some of his personal habits and ways of relating to other children are not acceptable in school. He drifts a lot, yet his drawings show focus and power and can evoke an entire scene. There are many paradoxes. Although the teacher says he slips through her fingers, she is drawn to him. He gets out of control with other children and invades their space a lot, but he has masterful control of line and color in his work. He loves stories and uses language in imaginative ways, but seems to be having trouble learning to read and write. Routines are hard for him, but he can concentrate for long periods of time.

STEP IV. The chairperson then asks for descriptions from other staff who have had the opportunity to work with the child or who have made observations specifically for the purpose of the Review. Presenting teachers can also report comments from other staff members who may not be present at the Review.

STEP V. The chairperson gives a brief account of the child's previous school experience, any important medical data, and any information supplied by the family for the use of the school. The privacy of the family is protected, and hearsay is avoided. The teacher tries to report what she knows directly from the family. The review is primarily focused on what the teacher can do in the classroom to support the child, unless the family chooses to be present or has become involved in the Review itself.

STEP VI. The chair opens the Review to the questions and comments of the participating staff after restating the focusing question.

Implicit Assumptions

--Multiple perspectives will ensure a balanced portrayal to neither overemphasize some current problem nor minimize an ongoing difficulty (Carini, 1986).
--Questions draw out new information and descriptions of the child.
--More information will clarify the portrayal of the child.
--It takes time to understand the child.
--Participants offer other perspectives because of their experiences with other children.
--The teacher may shift her question about the child.
--The teacher may not be aware of the changes and growth that are already occurring.
--Questions wili be separate from recommendations.

As the participants listen to the portrayal, they are trying to actively construct a picture of the child. At this time, they take responsibility for the work of drawing out the presentation by asking questions. It is important to have enough time to ask questions so that the child will emerge as clearly as possible.

The participants' questions open up multiple perspectives through which the presenting teacher can make the child more visible for the group. The questions may suggest new ways of looking at the child. The presenting teacher's own biases may have prevented her from seeing a certain aspect of the child or her own behavior in relation to the child. Since the outcome of the Review is not predetermined, the questions and comments may lead the teacher to change her focusing question and her expectations.

As the listeners draw on their own experiences and knowledge of other children to try to make sense of this particular child and to make effective recommendations to the teacher, they are generating new information. These strategies and insights become a resource for everyone.

Participants' Questions

1. What exactly does Sam do when he falls apart?
2. What activities or experiences give him joy?
3. Is his little sister well-kempt?

4. You talked about relationships with other kids. Are there other times when children invite involvement with him?
5. Does he seek out other kids to help him with his work?
6. Do you lose your temper with him sometimes and what happens then?
7. Has he been checked out by a medical doctor?
8. What draws you to Sam?
9. How does he answer when you reprimand him?
10. What do you do when he wanders?
11. How do you see his mother relating to him?
12. What strategies does he use when he reads?

STEP VII. The chair then summarizes this new information, restates the focusing question, and asks for recommendations.

Implicit Assumptions

--Recommendations are based on the child's strengths.
--Recommendations address the focus that the teacher has stated.
--They may reflect new directions that arise from questions.
--They build on each other as one idea prompts another.
--They reflect the different perspectives of participants.
--They will take into account the realities of the classroom and school.
--They will support what the teacher can do in the classroom.
--Recommendations may be contradictory.
--The teacher is not expected to comment on them.
--The teacher will decide which ones are suitable for her.
--The recommendations are a resource for all the teachers.

Recommendations

1. Keep up the physical contact. This is helping him. He values contact and connection.
2. Focus on science. Especially, ask him to do observations of animals. He is interested in animals, sees the whole, and is also attentive to detail. Have him do observations of other activities in the classroom.
3. To help him focus his vision, have him do lots of activities with optics. Ask him to draw what he sees under the microscope or under magnifying lenses, then to compare how it looks without the lenses. Ask him to tell you what is real and what is not real.
4. Mirrors can help him to become more aware of his body. Have him make a self-portrait with and without a mirror.
5. When he constructs something, have him draw it in another medium.
6. Find books that reflect his interests and concerns, such as ***My Mother and I Are Growing Strong*** by Inez Maury (a children's book in English and Spanish). Discussions of human experiences reflected in literature

can be powerful ways to teach.

7. Find someone in the school who can be an "anchor" for him for the next year. That person could talk to Sam, give him some extra attention, and keep track of his work and his ability to control himself with others.
8. You or the counselor could try to connect with a senior citizens group in the area that would be available to visit the school. The grandmothers and grandfathers have time and could read and talk with Sam, as well as the other kids in the school who need extra attention.
9. He creates wonderful drawings -- he has lots of potential. Have him make his own big books that could be shared. Have him make books about familiar stories and illustrate them.
10. Go through his journals with him to help him see that he's come a long way.
11. The Teachers Learning Cooperative should describe his pictures in one of its meetings.

STEP VIII. The chairperson's final "pulling together" of the review, critique, and plans for follow-up. In a brief summary, the chair draws out the dominant themes of the recommendations:

> The recommendations have to do with finding ways for Sam to see his strengths and himself more positively, to establish an outside focus to minimize his confusion, and to get him more attention. They acknowledge Sam's talents in art and suggest that the teacher use these to help him see his own strengths over time, and produce more writing. They suggest that the teacher build on his interests in science and animals to help him become more involved in academic work. These recommendations are consistent with the teacher's use of these subjects as the basis for developing curriculum in the classroom.

* * *

Teachers who have participated in many Descriptive Reviews feel that the format itself has certain general assumptions and values that have wide implications for teachers and for schools. Following are some of these, drawn from conversations in the Teachers Learning Cooperative.

Implicit Assumptions

--Teachers have knowledge about children and classrooms.
--Through descriptions of particular children, teachers can share this knowledge.

Bibliography

Bibliography

Alverno College Faculty (1979/1985). *Assessment at Alverno College*. Milwaukee: Author.

Alverno College Faculty (1984). *Analysis and Communication at Alverno: An Approach to Critical Thinking*. Milwaukee: Author.

Andrias, J., Kanevsky, R.D., Strieb, L.Y., and Traugh, C. (1992). *Exploring Values and Standards: Implications for Assessment*. New York: National Center for Restructuring Education, Schools, and Teaching, Teachers College, Columbia University.

Anrig, G. (1992, June 17). "By All Measures: The Debate Over Standards and Assessments." *Education Week Special Report*.

Applebee, A.N., Langer, J.A., and Mullis, I.V.S. (1989). *Understanding Direct Writing Assessments*. Princeton: Educational Testing Service.

Archbald, D.A. and Newmann, F.M. (forthcoming). "The Nature of Authentic Academic Achievement." In H. Berlak (Ed.), *Assessing Achievement Toward the Development of a New Science of Educational Testing*. Albany: SUNY Press.

Archbald, D.A. and Newmann, F.M. (1988). *Beyond Standardized Testing: Assessing Authentic Academic Achievement in the Secondary School*. Reston, VA: National Association of Secondary School Principals.

Askin, W. (1986). *Evaluating the Advanced Placement Portfolio in Studio Art*. Princeton: College Board and Educational Testing Service.

Banta, T.W. (Ed.) (1988). *Implementing Outcomes Assessment: Promise and Perils*. San Francisco: Jossey-Bass.

Barrs, M. (1990). "The Primary Language Record: Reflection of Issues in Evaluation." *Language Arts 67* (3): 244-253.

Barrs, M. and Thomas, A. (1989). *The Primary Language Record Handbook*. New York and London: Heinemann Educational Books.

Barrs, M. and Thomas, A. (1990). *Patterns of Learning*. London: Center for Language in Primary Education.

Berlak, H., Newmann, F.M , Adams, E., Archbald, D.A., Burgess, T., Raven, J., and Romberg, T. (1992). *Toward a New Science of Educational Testing and Assessment*. Albany: State University of New York.

Berk, R.A. (Ed.) (1986). ***Performance Assessment: Methods and Applications***. Baltimore: The Johns Hopkins University Press.

Birch, W. (1986). "Towards a Model for Problem-Based Learning." ***Studies in Higher Education 11*** (1): 73-82.

Block, J. (1971). "Criterion Referenced Measures: Potentials." ***School Review 75***: 289-298.

Bloom, B., Madaus, G., and Hastings, J.T. (1981). ***Evaluation to Improve Learning***. New York: McGraw-Hill.

Brandt, R. (Ed.) (1992). ***Readings for Educational Leadership: Performance Assessment***. Alexandria, VA: Association for Supervision and Curriculum Development.

Brooks, G. (1987). ***Speaking and Listening: Assessment at Age 15***. London: Assessment of Performance Unit, Department of Education and Science of Great Britain.

Burke, K. (Ed.) (1992). ***Authentic Assessment: A Collection***. Palatine, IL: IRI Skylight Publishing, Inc.

Burns, M. (1989). "Timed Tests." ***The Math Solution Newsletter #7***.

California Assessment Program (1989). ***A Question of Thinking. A First Look at Students' Performance on Open-Ended Questions in Mathematics***. Sacramento: California State Department of Education.

Cambridge Public Schools (1991). ***Documentation and Assessment of Student Progress***. Unpublished Report. Cambridge, MA: Author.

Cannell, J.J. (1987). ***Nationally Normed Elementary Achievement Testing in America's Public Schools: How All Fifty State Are Above the National Average***. West Virginia: Friends for Education.

Cannell, J.J. (1989). ***How Public Educators Cheat on Standardized Achievement Tests***. Albuquerque: Friends for Education.

Centre for Language in Primary Education (1989). ***The Primary Language Record***. Portsmouth, NH: Heinemann.

Champagne, A.B., Lovitts, B.E., and Calinger, B.J. (1990). ***Assessment in the Service of Instruction***. Washington, DC: American Association for the Advancement of Science.

Charles, R.I. and Silver, E.A. (Eds.) (1988). ***The Teaching and Assessing of Mathematical Problem Solving***. Reston, VA: National Council of Teachers of Mathematics.

Charles, R., Lester, F., and O'Daffer, F. (1987). *How to Evaluate Progress in Problem Solving*. Reston, VA: National Council of Teachers of Mathematics.

Chittenden, E. (1991). "Authentic Assessment, Evaluation, and Documentation of Student Work." In V. Perrone (Ed.), *Expanding Student Assessment*. Alexandria, VA: Association for Supervision of Curriculum Development.

Chittenden, E. and Courtney R. (1989). "Assessment of Young Children's Reading: Documentation as an Alternative to Testing." In D.S. Strickland and L.M. Morrow (Eds.), *Emerging Literacy: Young Children Learn to Read and Write*. Newark, DE: International Reading Association.

Clark, D. (1988). *Assessment Alternatives in Mathematics. The Mathematics Curriculum and Teaching Program*. Australian professional development package for assessment of student learning. (Write: Publications Officer, CDC, PO Box 34, Woden Act 2606, Australia.)

Coalition of Essential Schools (1990). "Performances and Exhibitions: The Demonstration of Mastery." *Horace 6* (3). Providence: Author.

Cross, K.P. and Angelo, T.A. (1988). *Classroom Assessment Techniques: A Handbook for Faculty*. Ann Arbor, MI: National Center for Research to Improve Post-Secondary Teaching and Learning, University of Michigan.

Darling-Hammond, L. (1985). "Mad Hatter Tests of Teaching." In B. and R. Gross (Eds.). *The Great School Debate*. New York: Simon and Schuster.

Darling-Hammond, L. (1988). *Assessment and Incentives: The Medium is the Message*. Presented at the AAHE Assessment Forum Third National Conference on Assessment in Higher Education.

Darling-Hammond, L. (1990). "Achieving Our Goals: Superficial or Structural Reforms?" *Phi Delta Kappan 72* (4): 286-295.

Darling-Hammond, L. (1991). "The Implications of Testing Policy for Quality and Equality." *Phi Delta Kappan 73* (3): 220-225.

Darling-Hammond, L. (1991). "Measuring Schools is Not the Same as Improving Them." *Youth Policy 13* (4 & 5): 30-32.

Darling-Hammond, L. (1992). *Standards of Practice for Learner-Centered Schools*. New York: National Center for Restructuring Education, Schools, and Teaching, Teachers College, Columbia University.

Darling-Hammond, L. (1992). "Educational Indicators and Enlightened Policy." *Educational Policy 6* (3): 235-265.

Darling-Hammond, L. (Winter 1992-1993). "Creating Standards of Practice and Delivery for Learner-Centered Schools." *Stanford Law and Policy Review 4*: 37-52.

Darling-Hammond, L. (1993). "Creating a Long-Term View of Student Learning. Portfolios: Assessing Knowledge and Performance." *New York Schools Boards*, January, 1993: 11-14.

Darling-Hammond, L. and Ascher, C. (1991). *Creating Accountability in Big City Schools*. New York: ERIC Clearinghouse on Urban Education and NCREST.

Darling-Hammond, L. and Snyder, J. (1992). "Reframing Accountability: Creating Learner-Centered Schools." In A. Lieberman (Ed.). *The Changing Contexts of Teaching*. Chicago: The University of Chicago Press.

Darling-Hammond, L. and Wise, A.E. (1985). "Beyond Standardization: State Standards and School Improvement." *The Elementary School Journal 85* (3): 315-336.

Department of Education and Science and the Welsh Office (1988). *National Curriculum: Task Group on Assessment and Testing: A Report*. England and Wales: Author.

Desforges, C. (1989). *Testing and Assessment*. London: Cassell Educational Limited.

Dossey, J., Mullis, I., Lindquist, M., and Chambers, D. (1988). *The Mathematics Report Card, Are We Measuring Up?* Princeton: Educational Testing Service.

Dyer, H.S (1980). *Parents Can Understand Testing*. Columbia, MD: National Committee for Citizens in Education.

Educational Leadership (1985). "The Search for Solutions to the Testing Problem" *43* (2).

Educational Leadership (1989). "Redirecting Assessment." *46* (7).

Educational Leadership (1992). "Using Performance Assessment." *49* (8).

Educational Testing Service (1986). *The Redesign of Testing for the 21st Century*. Princeton: Author.

Educational Testing Service (1987a). *Assessment in the Service of Learning*. Princeton: Author.

Educational Testing Service (1987b). *Learning by Doing: A Manual for Teaching and Assessing Higher-Order Thinking in Science and Mathematics*. NAEP Report #17-HOS-80.

Educational Testing Service (1989a). *Crossroads in American Education*. Princeton: Author.

Educational Testing Service (1989b). *A World of Differences: An International Assessment of Mathematics and Science*. Princeton: Author.

Elbow, P. (1986). *Embracing Contraries: Explorations in Teaching and Learning*. New York: Oxford University Press.

Falk, B. and Darling-Hammond, L. (1993). *The Primary Language Record at P.S. 261: How Assessment Transforms Teaching and Learning*. New York: National Center for Restructuring Education, Schools, and Teaching, Teachers College, Columbia University.

Forrest, A. (1975). *A Student Handbook on Preparing a Portfolio for the Assessment of Prior Learning*. CAEL Working Paper #7. Princeton: Educational Testing Service.

Frymeir, J. (December 6, 1989). "Retention In Grade is 'Harmful' to Students." *Education Week 9* (14): 32.

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences*. New York: Basic Books.

Gardner, H. (forthcoming). "Assessment in Context: The Alternative to Standardized Testing." In B. Gifford and M.C. O'Connor (Eds.), *Cognitive Approaches to Assessment*. Boston: Kluwer Academic Publishers.

Gendler, T. (1988). "Testing What We Want to Measure." *Basic Education 33* (1): 7-11.

Ginsburg, H.P. (1987). *Assessing the Arithmetic Abilities and Instructional Needs of Students*. Austin, TX: Pro-Ed.

Glaser, R. (1986). "The Integration of Instruction and Testing." In *The Redesign of Testing for the 21st Century*. Princeton: Educational Testing Service.

Goodlad, J. (1984). *A Place Called School: Prospects for the Future*. New York: McGraw Hill.

Goodman, K.S., Goodman, Y.M., and Hood, W.J. (Eds.) (1989). *The Whole Language Evaluation Book*. Portsmouth, NH: Heinemann and Toronto: Irwin Publishing.

Gould, S.J. (1981). *The Mismeasure of Man*. New York and London: W.W. Norton and Company.

Haberman, M. (1989). "Thirty-One Reasons to Stop the School Reading Machine." *Phi Delta Kappan 71* (4): 284-288.

Haladyna, T.M., Nolen, S.B., and Haas, N.S. (1991). "Raising Standardized Achievement Test Scores and the Origins of Test Score Pollution." *Educational Researcher 20* (5): 2-7.

Haney, W. (1984). "Testing Reasoning and Reasoning About Testing." *Review of Educational Research 54* (4): 597-654.

Haney, W. and Madaus, G. (1986). *Effects of Standardized Testing and the Future of the National Assessment of Educational Progress.* Working paper for the NAEP study group. Chestnut Hill, MA: Center for the Study of Testing, Evaluation, and Educational Policy.

Heffernan, J.M., Hutchings, P., and Marchese, T. (1988). *Standardized Tests and the Purposes of Assessment.* Paper prepared for the American Association of Higher Education.

Herman, J.L., Aschbacher, P.R., and Winters, L. (1992). *A Practical Guide to Alternative Assessment.* Alexandria, VA: Association for Supervision and Curriculum Development.

Higgs, T. (Ed.) (1984). *Teaching for Proficiency, The Organizing Principle.* Lincolnwood, IL: National Textbook Company.

Hill, C. and Larsen, E. (1992). *Testing and Assessment in Secondary Education: A Critical Review of Emerging Practices.* Berkeley: National Center for Vocational Education.

Houts, P.L. (Ed.) (1977). *The Myth of Measurability.* New York: Hart Publishing Company.

Howard, K. (1990). "Making the Writing Portfolio Real." *The Quarterly of the National Writing Project and the Center for the Study of Writing 12* (2): 4-7, 27.

Kamii, C. (Ed.) (1989). *Achievement Testing in the Early Grades.* Washington, DC: National Association for the Education of Young Children.

King, D.F. (Winter 1990). "Real Kids or Unreal Tasks: The Obvious Choice." *Kentucky English Bulletin.*

Koretz, D. (1988). "Arriving in Lake Wobegon: Are Standardized Tests Exaggerating Achievement and Distorting Instruction?" *American Educator 12*: 8-15.

Koretz, D. (1989). *A Framework for Evaluating and Validating Indicators of Mathematics and Science Education.* Santa Monica: The RAND Corporation.

Kornhaber, M. and Gardner, H. (1993). *Varieties of Excellence: Identifying and Assessing Children's Talents.* New York: National Center for Restructuring Education, Schools, and Teaching, Teachers College, Columbia University.

Kulm, G. (Ed.) (1990). *Assessing Higher Order Thinking in Mathematics.* Washington, DC: American Association for the Advancement of Science.

Kulm, G. and Malcom, S.M. (Eds.) (1991). *Science Assessment in the Service of Reform.* Washington, DC: American Association for the Advancement of Science.

Lesh, R. and Lamon, S.J. (Eds.) (1992). *Assessing of Authentic Performance in School Mathematics.* Washington, DC: American Association for the Advancement of Science.

Lipson, J. (1988). "Testing in the Service of Learning Science: Learning Assessment Systems that Promote Education Excellence and Equality." In *Assessment in the Service of Learning.* Princeton: Educational Testing Service.

Madaus, G. (1986). "The Perils and Promises of New Tests and Technologies: Dick and Jane and the Great Analytical Engine?" In *The Redesign of Testing for the 21st Century.* Princeton: Educational Testing Service.

Maeroff, G.I. (1991). "Assessing Alternative Assessment." *Phi Delta Kappan 73* (4): 273-281.

Mathematical Sciences Education Board (1993). *Measuring Up: Prototypes for Mathematical Assessment.* Washington. DC: National Academy Press.

McDonald, J.P. (1991). *Exhibitions: Facing Outward, Pointing Inward.* Providence: Coalition of Essential Schools, Brown University.

McKnight, C.C., Crosswhite, F.J., Dossey, J.A., Kifer, E., Swafford, S.O., Travers, K.J., and Cooney, T.J. (1987). *The Underachieving Curriculum: Assessing U.S. School Mathematics from an International Perspective.* Champaign, IL: Stipes Publishing.

McMillan, J.H. (1988). *Assessing Students' Learning.* San Francisco: Jossey-Bass.

Mehrens, W. and Kaminski, J. (1989). "Methods for Improving Standardized Test Scores: Fruitful, Fruitless, or Fraudulent?" *Educational Measurement: Issues and Practice 8* (1): 14-22.

Mercer, J.R. (1989). "Alternative Paradigms for Assessment in a Pluralistic Society." In J.A. Banks and C.A. McGee Banks (Eds.), *Multicultural Education.* Boston: Allyn and Bacon.

Mitchell, R. (1989). "Authentic Assessment." *Basic Education 33* (10): 6-10.

Mitchell, R. (1990). "The English National Assessment: Some First Hand Observations." *Network News and Views 9* (8): 79-85.

Mitchell, R. (1991). *Testing For Learning: How New Approaches to Evaluation Can Improve American Schools*. New York: The Free Press/Macmillan.

Mumme, J. (1990). *Portfolio Assessment in Mathematics*. Santa Barbara: California Mathematics Project.

National Assessment of Educational Progress (1981). *Reading, Thinking, and Writing: Results from the 1979-80 National Assessment of Reading and Literature*. Denver: Author.

National Assessment of Educational Progress (1985). *Math Objectives: 1985-86 Assessment*. Princeton: Author.

National Commission on Testing and Public Policy (1990). *From Gatekeeper to Gateway: Transforming Testing in America*. Chestnut Hill, MA: Author.

National Council of Teachers of English (1988). *Report Cards on Basals*. Urbana, IL: Author.

National Council of Teachers of Mathematics (1989). *Curriculum and Evaluation Standards for School Mathematics*. Reston, VA: Author.

National Research Council (1982). *Ability Testing and Its Consequences*. Washington, DC: National Academy Press.

New Jersey Basic Skills Council (1986). *Thinking Skills: An Overview*. Trenton: Department of Higher Education.

New Jersey State Department of Education (1985). *HSPT Skills Array: Mathematics*. Trenton: Author.

New Jersey State Department of Education (1988). *Preparing to Enter the 21st Century: Revising New Jersey's Statewide Testing Program*. Trenton: Author.

Newmann, F.M. (1991). "Linking Restructuring to Authentic Student Achievement." *Phi Delta Kappan 72* (6): 458-463.

Pearson, P.D. and Valencia, S. (1989). "Assessment, Accountability, and Professional Prerogative." In *Research in Literacy: Merging Perspectives. Thirty Sixth Yearbook of The National Reading Conference*. The National Reading Conference, Inc.

Perrone, V. (1991). *Expanding Student Assessment*. Alexandria, VA: Association for Supervision and Curriculum Development.

Phi Delta Kappan (1989). "Special Section on Testing." *70* (9).

Powell, A. (1986). "Exhibitions of Mastery: Some Preliminary Considerations." An unpublished working paper available from the Coalition of Essential Schools, Brown University.

Priestly, M. (1982). *Performance Assessment in Education and Training: Alternative Techniques*. Englewood, NJ: Educational Technology Publications.

Resnick, L. (1992, June 17). "By All Measures: The Debate Over Standards and Assessments." *Education Week Special Report.*

Resnick, L. (1987). *Education and Learning to Think*. Washington, DC: National Academy Press.

Resnick, L. and Klopfer, L. (Eds.) (1989). *Toward The Thinking Curriculum: Current Cognitive Research*. Reston, VA: The Association of Supervision and Curriculum Development.

Romberg, T.A. (Ed.) (1992). *Mathematics Assessment and Evaluation: Imperatives for Mathematics Educators*. Albany: State University of New York.

Schwartz, J.L. and Viator, K.A. (Eds.) (1990). *The Prices of Secrecy: The Social, Intellectual, and Psychological Costs of Current Assessment Practice*. Cambridge, MA: Educational Technology Center, Harvard Graduate School of Education.

Shepard, L.A. (1991). "Psychometricians' Beliefs and Learning." *Educational Researcher 20* (7): 2-15.

Shepard, L.A. (1991). "Will National Tests Improve Student Learning?" *Phi Delta Kappan 73* (3): 232-238.

Sizer, T. (1986). "Changing Schools and Testing: An Uneasy Proposal." In *The Redesign of Testing for the 21st Century*. Princeton: Educational Testing Service.

Snow, R. (1988). "Progress in Measurement, Cognitive Science and Technology that Can Change the Relation between Instruction and Assessment." In *Assessment in the Service of Learning*. Princeton: Educational Testing Service.

Spandel, V. (1981). *Classroom Applications of Writing Assessment: A Teacher's Handbook*. Portland, OR: Northwest Regional Educational Laboratory.

Sternberg, R. (1985). *Beyond IQ: A Triarchic Theory of Human Intelligence*. Cambridge: Cambridge University Press.

Stiggins, R. (1987). "Design and Development of Performance Assessments." *Educational Measurement: Issues and Practice 6* (4): 33-42.

Stiggins, R. (1988a). "Revitalizing Classroom Assessment: The Highest Instructional Priority." *Phi Delta Kappan 69* (5): 363-368.

Stiggins, R. (1988b). *Measuring Thinking Skills in the Classroom*. West Haven, CT: NEA Professional Library.

Stiggins, R. and Conklin, N.F. (1992). *In Teachers' Hands: Investigating the Practices of Classroom Assessment*. Albany: State University of New York.

Suen, H.K. and Davey, B. (1990). *Potential Theoretical and Practical Pitfalls and Cautions of the Performance Assessment Design*. Paper presented at the Annual Meeting of the American Educational Research Association.

Tucker M. (1992, June 17). "By All Measures: The Debate Over Standards and Assessments." *Education Week Special Report*.

Victoria Ministry of Education (1986, 1987). *Into Practice: Goal-Based Assessment and Negotiated Curriculum, Books One and Two*. Victoria, Australia: Author.

Wiggins, G. (1989). "Teaching to the (Authentic) Test." *Educational Leadership 46* (7): 41-47.

Wiggins, G. (1990). *The Prices of Secrecy: The Social, Intellectual, and Psychological Costs of Current Assessment Practice*. A Report to the Ford Foundation.

Wiggins, G. (1991). "Standards, Not Standardization: Evoking Quality Student Work." *Educational Leadership 48* (5): 18-25.

Wiggins, R. (1987). "Creating A Thought-Provoking Curriculum: Lessons Learned from Whodunits and Others" *American Educator 11* (4): 10-17.

Wiggins, R. (1988). "Rational Numbers: Toward Grading and Scoring That Helps, Rather Than Harms, Learning." *American Educator 12* (4): 20-25.

Wolf, D.P, LeMahieu, P.G., and Eresh, J. (1992). "Good Measure: Assessment as a Tool for Educational Reform." *Educational Leadership 49* (8): 9-13.

Worthen, B.R. and Spandel, V. (1991). "Putting the Standardized Test Debate in Perspective." *Educational Leadership 48* (5): 65-69.